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Behind the Seawall

Historical Archaeology Along the San Francisco Waterfront

Volume 2



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BEHIND THE SEAWALL:
HISTORICAL ARCHAEOLOGY ALONG THE SAN FRANCISCO WATERFRONT
Volume 2

Prepared by Archeo-Tec for the
San Francisco Clean Water Program

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THE N-5 SITE: FILLING AND UNFILLING OVER NORTH POINT

This area was subject to casual dumping during the 1880s, and some of the deposited trash might prove of interest to archaeologists or historians.

San Francisco Waterfront 1977

The tower crane erected for construction of the N-5 pump station commands an enviable view of the bay. To the west sits the Golden Gate, to the east the Bay Bridge and Yerba Buena Island. If the spot were available for a high-rise apartment building, it would come at a steep price.

The N-5 site nestles at the foot of Telegraph Hill on the southwest corner of the intersection of Kearny and North Point streets. Catty-corner across the intersection lies the Embarcadero, and on the other side of the broad roadway are the waters of San Francisco Bay. Just to the south of the site lies the original location of North Point, a small projection of land into the bay which formed a natural demarcation between San Francisco's northern waterfront and its eastern face, scene of most of the city's shipping and commerce (see Map 1.02 and Map 5.01).

When completed, the N-5 pump station being built on the site will consist of a giant pumping facility to receive effluents from the N-2 sewer line and propel them into N-3 and southward towards their ultimate destination, the Southeast Water Pollution Control Plant (see Map 1.01).

With its immense carrying capacity, this pump station represents a gigantic construction effort. Most of the effluent-handling portions of the station will be underground. To house the necessary tanks, channels, and pipes, construction specifications called for massive excavations reaching 63 feet in depth in some spots and cutting to at least 45 feet through

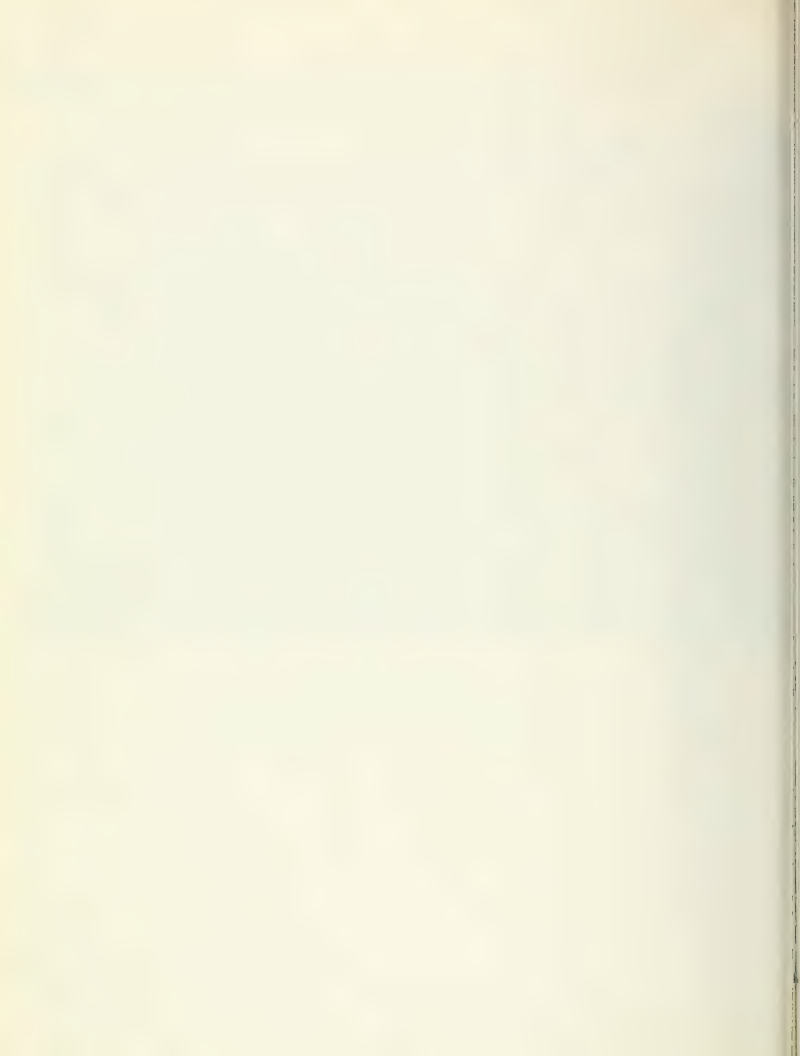
most of the site. Since the pump station spanned roughly 250 feet between Bay and North Point streets and varied in breadth from 60 to 100 feet, the deep excavation required that at least 30,000 cubic yards of earth, much of it bay fill, would have to be moved before concrete pouring could begin. This massive excavation would cut entirely through roughly 20 feet of artificially deposited fill, bite deeply into the mud of the original bay floor, and in some places possibly encounter bedrock. In fact, as excavation advanced, the site took on the look of a miniature open-cut mine, with heavy equipment appearing like toy models to observers peering in the pit from sidewalk level (see Figure 5.01).

Excavation on this scale required the use of special construction techniques. Accordingly, the perimeter of the site was lined with "soldier piles," huge I-beams driven into the ground on six-foot centers. These held in place wooden lagging which was inserted as excavation proceeded downward, creating a safe, shored wall for the huge growing hole. Excavation was conducted by means of various-sized backhoes and bulldozers. In the initial stages, equipment moved in and out of the developing hole on a ramp. As greater depths were reached, the ramp was removed, and equipment was lowered in and out by the huge tower crane operating at the site. Normally, working at depths of more than a few feet below City Base line so close to the waterfront would be stopped by the rapid incursion of tide-level groundwater. In this case a dewatering system was established which almost dried the soil to a depth of 10 feet and prevented the accumulation of most standing water (although the soil became mucky at depths below 10 feet).

In 1978, when construction started, Kearny Street covered the eastern portion of the site, while the lawn, flower beds, and a few asphalted parking spaces of the existing Pre-aeration and Sedimentation Building of the North Point Treatment Plant covered its western parts. Beneath this nondescript surface lay some 20 feet of artificial fill containing an unknown amount of cultural debris. Prior archaeological recommendations for the site in **San Francisco Waterfront** noted only that "this area was subject to casual dumping during the 1880s, and some of the deposited trash might prove of interest to archaeologists or historians" (p. 567). In the months to come, excavation for construction proved this estimation to be correct--if



Figure 5.01: Work on the N-5 Site, April 1978. . At this point in the N-5 excavation, crews first began to encounter the heavy, black soil which marked the undisturbed fill deposited in the early 1880s behind the seawall. The richest concentration of artifacts emerged near the retaining wall of soldier piles and wooden lagging which lines the edge of the excavation (right). (Robert Quan, WMP)



an understatement of considerable proportion. The fill which was later exposed yielded a trove of artifacts, including a sizeable component of Chinese-made goods.

More than 4,200 catalog entries were recorded for the site, representing an aggregate of more than 5,000 separate artifacts. In terms of the analysis carried out in this volume, the most important categories were ceramic ware (both of Chinese and Euro-American manufacture), bottles of various sorts, and ceramic doll parts. The diversity of the Chinese materials, when compared with finds from other archaeological sites, adds new depth to the accumulating record of nineteenth-century Chinese life in the West, as detailed in Chapter 9. The bottle collection was comprised principally of long recognized types--whiskey, beer, drug, soda water, wine, and others. It includes 45 embossed-label soda water bottles, 42 wine bottles, and 156 drug bottles discussed in detail in succeeding chapters. The 26 ceramic doll parts comprise a distinctive corpus of toys, thereby adding a non-alimentary dimension to the collection.

In terms of historical understanding of landfill, N-5 proves noteworthy for the vivid, detailed documentation which has been assembled concerning the history of the deposition at the site. Because it is possible to trace the development of the site from its original marine environment through the years to its designation as part of the sewer expansion project, this documented chronicle of deposition, when coupled with the large number and wide range of artifacts recovered, has enabled researchers to compile a detailed portrait of filling practices during the late nineteenth century on the north waterfront and their relationship to wider aspects of life in San Francisco during the period. Also gained is a much clearer notion of the characteristic artifactual material that may be expected to emerge from such a context of waterfront fill.

N-5: THE PAST

Using a variety of sources, it has been possible to compile a detailed description of the historical development of the N-5 site. Contemporary photographs, lithographs, and maps yield a great deal of information concerning the nature of the original site and the progress of filling behind the seawall after it was constructed. Map 5.01, reproduced from the 1859 Coast Survey map of San Francisco, shows the barely altered shoreline of the city's northern waterfront. The line of the future North Point Street and the N-5 site lie beneath the shoreline shallows of the bay. Only one structure, on North Point, stands near the site. During the 1860s and 1870s, the North Beach area was gradually built up, and North Point, no longer a desolate windswept promontory, was being enclosed by the expanding city.

Figure 5.02 shows the site as it appeared in 1877, again before any filling had occurred. The broad beach under what is today's Bay Street was then a fine place for a stroll. The dock labeled "1" is the Merchant's Dry Dock at the foot of Montgomery Street (see Figure 5.03), while the small wharf just to the right sat at what was then the foot of the line of Kearny Street. Present-day North Point Street runs over the water beyond the end of the small wharf. McNeil's Rock, a local landmark of the times, is visible. (Its remains were encountered during excavation of the N-5 site.) To the east of the N-5 site and stretching toward the city center may be seen the zig-zag line of the first seawall, constructed between 1867 and 1869 (see Figure 3.03).

When this first seawall was found to be defective in design--the currents of the bay produced silting and shoaling at the interior of each L-shaped segment--it was decided to build an improved version with rounded contours to avoid the silting problem. This second seawall extended further into the bay than the first wall, which it enclosed, pushing the city front to its present limits (Dow 1973: 48-60; **San Francisco Waterfront**: 480-491). The first segments of the new seawall began at the east property line of Kearny Street in 1878, with Section 1 extending westward toward what is today Fisherman's Wharf and Section 2 eastward toward the Ferry Building (see Map 1.02).

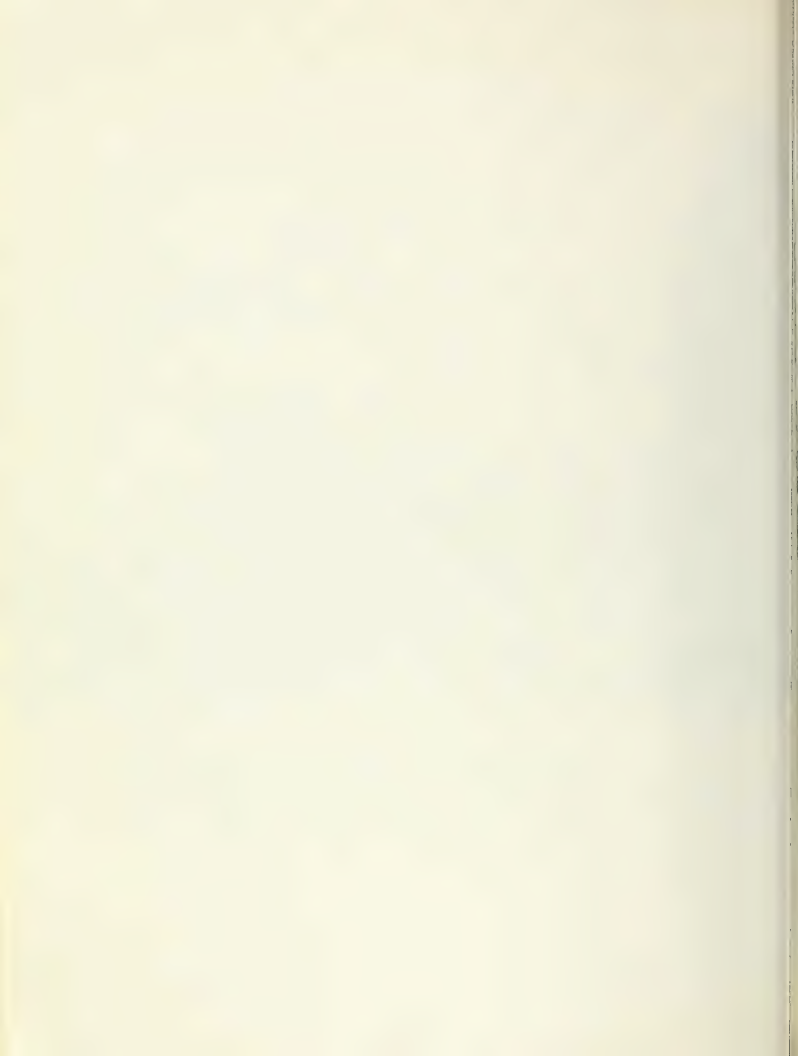


SAN FRANCISCO

Figure 5.02: The North Waterfront in 1877. . . Artist C. B. Gifford's south-looking birdseye view shows the location of the future N-5 site (1) only a year before construction began on the great seawall which extended the city to its present limits. Strollers promenade along a slightly raised beach at the toe of Telegraph Hill (2), a strip which today corresponds to the line of Bay Street. In the foreground is the large Merchant's Dry Dock (3), a wharf located between Montgomery and Kearny at Bay Street; the smaller wharf just to the west (right) is on the line of Kearny. Gifford's view reveals that N-5 was never the site of the busy maritime commercial activities that characterized the waterfront just to the east, beginning at the Merchant's Dry Dock. As visible in this lithograph, "warehouse row" at the foot of Sansome Street (4) marked the beginning of the earlier, unsuccessful seawall which zig-zagged eastward toward the foot of Market Street and the filled-in areas of the former Yerba Buena Cove (see Map 1.02). The photographer who turned his camera northward a few years later to record Figures 5.04 and 5.05 positioned himself near the still-barren crest of Telegraph Hill to capture the changes following in the wake of the new seawall. (Bancroft Library)



Figure 5.03: Merchant's Dry Dock in 1875. . .The launching of the tug **Monarch** was the occasion for this sizeable gathering at the dry docks. In 1879, the floating docks were removed to the south waterfront as construction of the new seawall approached the site. The modern N-3 sewer alignment, which cut behind the seawall, transected the area formerly occupied by these docks. Archaeological test borings and monitoring found that the primary fill used over the site was dune sand, which carried few cultural materials. (National Maritime Museum at San Francisco)



By 1881, Section 1 had been completed, as may be seen from Figure 5.04, a photograph taken from atop Telegraph Hill in about 1881. The waters of the bay over the N-5 site have now been filled in, and the Seawall Hotel, the first building on the newly established block between Kearny and Dupont Avenue, is now in place. The hotel lodged many of the men who worked on the northern segments of the seawall, and it is quite possible that some of the items such as bottles recovered from N-5 derived from the recreational activities of the hotel's inhabitants. A long grain shed surmounts the completed seawall behind the site. To the west of N-5, a large lagoon of enclosed bay water still exists, and a "canal" marks Dupont Street (now Grant Avenue).

A nearly identical photograph taken two years later shows the scene to be little changed. To the west in Figure 5.05, filling of the lagoon is progressing at a leisurely pace, and we can notice that the canal along Dupont Street is now filled. A scatter of trash is visible on the newly created land surface immediately behind the Seawall Hotel, some of it probably originating from the hotel itself. Although the overall scene has not changed much, the matching photographs confirm, however, that filling at the N-5 site had been virtually completed in the mid-1880s, with the grade established probably only a foot or two below the present elevation at the site.

As described later in this chapter, few artifacts were found in the eastern half of the excavation, most being concentrated in the western part near the post-chlorination building of the extant plant (see Figure 5.07). Historically, part of Section 1 of the seawall, as well as the filling of Kearny Street, was carried out under special provisions. Kearny Street was filled explicitly for the purposed of providing a causeway along which to transport material for the construction of the "sea-wall and embankment, from land at the junction of Kearny and Bay Streets to the site of the proposed main work at about the dividing line of Sections 1 and 2 thereof" (Hall et al., 1882:17). This causeway was erected under a separate contract which specified, among other things, that the contractor was to receive a pre-fixed sum for the work, and the amount of fill deposited was not to be measured. On the other hand, the contractor was obliged to provide to the chief engineer every opportunity "for determining the quantity of

material used; and to this end, the cars, carts, or other vehicles shall be, as far as possible, of uniform dimensions and filled with uniform loads" (Ibid.). The purpose of allowing the engineer these observations was to establish precisely the relationship between projected amounts of fill needed and actual fill delivered as counted in standardized units. The materials used were "earth fill" (primarily sand) and broken Telegraph Hill rock at the lower levels (Hall et al.: passim). Refuse dumping, clearly not a part of the carefully drawn terms of the Kearny Street contract, was no doubt limited to the occasional basket of trash or empty bottle which found its way into the contracted fill.

Once the seawall was completed, materials used as landfill consisted of a variety of substances. The 200-foot-wide seawall itself was made of heavy rock topped by clean sand at its trailing bayside edge. Behind this, however, many other sorts of fill were used. According to records in the offices of the San Francisco Port Authority, these included defective and soft stone unfit for commercial use from the Telegraph Hill quarries, sand from dunes being leveled in other parts of the city, and, after 1877, mud dredged up from points along the waterfront (**San Francisco Waterfront:488**).

It was evident from the test borings conducted at N-5 (discussed in the next section of this chapter) that a good deal of household and commercial refuse had also been deposited as part of the fill. Borings along North Point Street had suggested, in fact, that trash deposits were an important feature of the fill along much of the North Beach waterfront. Particularly heavy refuse concentrations had been encountered at the Stockton Street and Taylor Street intersections (Pastron 1979b). The artifacts from the N-2 and N-5 borings had also included a sizeable number of Chinese artifacts, indicating that dumping at the North Point area had included refuse collected in nearby Chinatown.

The search for historical documentation concerning refuse disposal and dumping practices which contributed artifacts to the behind-the-seawall fill produced little in the way of direct, reliable evidence. While the artifacts and trash are concretely there, how they got there is less clear. The evidence adduced in Chapter 3 suggests strongly that dumping of household and commercial garbage was a widespread practice in the city, one which raised numerous complaints, and while a main city dump was



Figure 5.04: Filling Behind the Seawall c. 1881. . . A grain shed already sits atop Section 1 of the newly erected seawall, while filling of the lagoon behind the wall is taking place along Mason Street (far left of photo). A canal (1) marks the line of Dupont (now Grant) Street. The Seawall Hotel (2) fronting on Bay Street sits near the southwest corner of the N-5 site. Apparently the area behind the hotel has nearly been brought to grade. (National Maritime Museum at San Francisco).



Figure 5.05: The Seawall Hotel c. 1883. . . One section of the photographic panorama taken from the same spot as Figure 5.04, this view shows a scatter of trash on the newly made ground surface behind the hotel (1). An adjoining section of the panorama shows that the Dupont Street canal has been filled, indicating the passage of time since the earlier view. Kearny Street is also filled to grade, but a large lagoon still remains immediately to the east, at approximately the former location of the Merchant's Dry Dock. (Wells Fargo History Room)

apparently located at the foot of Sixth Street, the artifacts from N-5 testify that quantities of refuse found their way into areas being filled along the northern waterfront.

Beyond the newspaper reports concerning "Dumpville" cited in Chapter 3, further references to "authorized" or commonly known dump sites have not been located. The only published record dealing directly with the history of refuse disposal in San Francisco, Perry's **San Francisco Scavengers**, devotes only 15 pages to "the old days", the period 1900 to 1939. The subject index at the Bancroft Library adds only a few references, mostly a handful of very recent studies in "solid waste management." Similarly, inquiries to archivist Gladys Hansen at the San Francisco Public Library produced no information concerning major dumping sites. The ultimate disposition of the city's trash appears not to have been something observers of San Francisco life frequently recorded. As Perry notes, the public does not like to think about garbage problems and does so only when the scavengers go on strike; apparently chroniclers are no different in attitude (1978: ix).

In the absence of strong direct evidence concerning dumping at N-5, we must rely on indirect types of proof. The relatively large sample of more than 500 Chinese artifacts recovered, together with the particularly wide diversity of types found, indicates that refuse from the restaurants and homes of Chinatown must have been dumped at N-5. The proximity of the Seawall Hotel to the site suggests that some artifacts must almost certainly have come from its boarders. The common beverage bottles--wines, drugs, and sodas (see Chapters 6-8 and Appendix B)--littering the site could certainly have come from a workingman's hotel, yet the sheer quantity of refuse present at the site, plus the fact that the N-2 test borings show similar heavy artifact deposits all along North Point Street (see Table 3.01), imply larger quantities of refuse than could be produced by a single establishment. We possess in addition Morphy's interesting reminiscence that "garbage fossickers" made an occupation of rummaging through trash heaps at low tide in areas being filled. Anything of value they found would be "recycled" at Walton's Junk Shop, located on Meigg's Wharf (**San Francisco Waterfront**: 624). We must conclude, perforce, even in the absence of direct testimony, that the N-5 fill contains artifacts

gathered from neighboring parts of the city, including Chinatown, and presumably dumped by the cartload as part of the filling process around North Point (see Figure 3.15). These artifacts from North Beach and Chinatown establishments are no doubt mixed with their more casually deposited counterparts from the adjoining Seawall Hotel.

The 1887 Sanborn Map, corrected to 1891, shows only two structures on the N-5 block. One of these is the Seawall Hotel, the other a small single story saloon at the southwest corner of Kearny and North Point streets. This building does not appear on the original 1887 Sanborn Map, and therefore it must post-date that year. While bottles and trash from this small saloon must have been deposited at the N-5 site, the block had long since been brought to grade, and artifacts dating from the era of the 1890s saloon would presumably have been deposited either on the surface or buried a few feet below ground in shallow trash pits. A few sherds of white stoneware found at N-5 bear manufacturer's marks which may be attributed to the 1890s (see Appendix D). These may originate from this kind of deposition (see below).

Figure 5.06, taken at the turn of the century, confirms what we know of the history of the site and adds some detail to our knowledge of the development of the surrounding areas. In the center of the photo is the office and workshop of John Twigg and Sons, well-known boat builders. Recalling this era and place in the city's maritime history, Ed McCarthy, manager of the Marine Exchange lookouts at the Hyde Street wharf and Point Lobos, talked of "Whitehall boats", a sort of water taxi used to ferry passengers to and from sailing ships at anchor in the bay. "They were good rowing boats, light in the water. . .John Twigg and Son (sic) made some of the best, at the foot of Stockton Street" (quoted in O'Brien 1950).

Langley's city directories for the 1880s and 1890s show John Twigg and Sons located at King and Third streets until 1899. From 1900 to 1906, when the boatyard was destroyed by the Great Fire, the business was situated at North Point and Stockton, as seen in the photograph. Immediately after the fire, according to the 1907 San Francisco-Oakland directory, the firm took up new quarters at Illinois and Eighteenth Street, south of Channel Street.



Figure 5.06: North Beach Waterfront
c. 1900. . . John Twigg's boat building shop at Stockton and Bay (1) arose on the new land behind the seawall. The blocks surrounding the plant and office were still vacant c. 1900, however, indicating a leisurely pace of development in North Beach. Accordingly, Twigg enjoyed ample storage space for his lumber. At the far right of the photograph, the block between Grant and Keamy has been completely filled and brought to grade (2). The N-5 site is just out of view to the right. (California Historical Society)

In Figure 5.06, the dark four-story building near the right-hand edge of the photo sits on the west side of Grant Street. Visible at the extreme right is the western portion of the block on which the N-5 site is located. Twigg's lumber yard extends to Grant Street, but not onto the N-5 block, which still lies vacant. All the blocks between Kearny and Mason have been filled, although several still lie vacant. West of Mason, there is still enough unfilled bay water to permit small watercraft to anchor, and street lines and water lots are marked by rows of pilings. The N-5 block, and those immediately to the west, then, clearly developed slowly. They either lay vacant for some two decades after being filled or were developed non-intensively, as suggested by Twigg's sprawling four-block operation.

Once the blocks surrounding N-5 were filled, the area developed into a warehouse and light industry district. It is not clear what happened to the Seawall Hotel, the first business on the block bounded by North Point, Bay, Dupont (now called Grant Avenue), and Kearny streets, but in 1901, according to the **Hicks Judd Block Book**, the block stood totally vacant. It was owned, according to the same source, by Alvina Hayward. **Mary's Block Book** indicates that in 1909, the block still lay vacant, although the property had changed hands, with the block divided into two parcels owned by a John McGilvray and a James McNab.

Ten years later, four warehouses occupied the block. Harbor Warehouse #2 was situated on the corner of North Point and Kearny, while its companion, Harbor Warehouse #3, occupied the quadrant at the corner of Kearny and Bay streets. A railroad spur line dividing the block separated the two buildings. These warehouses appear on the 1919, 1935, and 1948 versions of the Sanborn maps (viewed at the Bancroft Library). The 1948 update, however, bears a notation, "All Buildings This Block Vacant and To Be Removed."

This mark alludes to a move by the City of San Francisco to acquire title to the block so it could erect part of the new North Point Sewage Treatment Plant. In either late 1947 or early 1948, the warehouses were torn down, and construction of the new sewer plant began in the latter year. By 1949, parts of the plant were completed, and it was fully functional by 1950. The buildings erected at this time, still present on the block, include a large pre-aeration and sedimentation building and a

smaller sludge control structure. Where the Seawall Hotel once stood rests the round post-chlorination facility, visible on the site plan (see Figure 5.07) and photos of the site. These three buildings, however, left uncovered the eastern end of the block which fronts on Kearny Street. This area, partially landscaped and partially a parking lot, was later designated as the site of the N-5 pump station.

COLLECTING DATA AT N-5

Archaeological data from N-5 consists primarily of the observations and collections of monitors. Two archaeological test borings were conducted before the start of construction at the site, but technical problems involved in obtaining permits to bore resulted in holes being placed in North Point Street near--but outside of--the areas destined to be excavated for construction of the pump station (Pastron 1977b: 3). Both test borings revealed a profile of artifact-laden fill soil followed at lower depths by bay mud. Boring #1, the easternmost of these two, encountered bay mud at 14 feet. Artifacts continued to be found to 17 feet, suggesting that the weight of fill above had forced material into the soft silt and mud of the original bottom. The main concentration of cultural material, however, centered between 5 and 15 feet. Boring #2, made further west on North Point Street and hence further from the main excavation site, contained fewer artifacts, with the largest numbers found between 4 and 13 feet, where sterile soil was encountered. Both borings held household and restaurant-type refuse in the fill--bottle glass, ceramic sherds, and quantities of bone. In addition, both borings produced a number of Chinese artifacts, primarily dozens of sherds from hand-thrown brown-glazed stoneware jugs and jars (see Chapter 9 for a more detailed description of this type of ware), fragments of celadon and porcelain Chinese teacups, a chopstick, and other typical Chinese items (Pastron 1977b: 19-30). The sizeable artifact yield from these two borings confirmed the presumption, stated in **San Francisco Waterfront**, that the N-5 site "was subject to casual dumping during the 1880s, and some of this deposited trash might prove of interest to archaeologists or historians" (p. 567). On the basis of the data collected from the two test probes, the Principal Investigator recommended that measures be taken to mitigate the adverse impact to the archaeological resources at N-5. A program of intensive on-site monitoring was proposed as the most feasible method of mitigation (Pastron 1977b: 34-35).

Monitoring Began at N-5 when excavation commenced in November 1977 and it continued on a regular basis through April 1979, when it was clear that excavation had reached below the bottom of the artifact-bearing

fill layer. The site was usually monitored by a single individual, who spent several hours a day there (the rest of this time being divided among work on the N-2, N-3, and N-4 alignments). This monitor was responsible for collecting several sorts of data, including the recording of any features encountered (and notifying the Principal Investigator immediately in the case of any potentially significant find), keeping a log of the progress of excavation at the site, and recording placement and depths of various soil types exposed in the excavation for the purpose of later compiling master profiles and site plans. The monitor's observations were supplemented by those of the Principal Investigator on his routine inspections of the site.

During the monitoring program, measurements of depths at N-5 were taken with respect to a site datum point established at ground surface level at a point on the west edge of the excavation (see Figure 5.07). Elevation at the datum point was City Base +2.0 feet, while street elevation at Kearny and North Point was exactly City Base. The two-foot difference is accounted for by the succession of buildings and demolition known to have occurred on the block and by the effects of recent landscaping.

The depth of fill below this surface was anticipated on the basis of archival research to be approximately 20 feet. It was computed as follows: soundings shown on the manuscript version of the 1859 Coast Survey Map of San Francisco (see Map 5.01) indicate the original bay bottom sloping rapidly from a depth of about 4 feet near the shore to 18 feet (shown by the three-fathom line) some 250 feet further north. These soundings represent depth at low tide, and base for the Coast Survey maps was considered to be 11.67 feet above mean lower low water level. Therefore, for example, 18.67 feet of fill would be anticipated where the map showed an 1859 sounding of 5 feet and present elevation is City Base plus 2 feet.

Allowing for a general downward slope toward the north and for localized irregularities in the bay bottom, it was estimated that fill depths would range from 15 feet at the south end of the excavation to about 32 feet at the north. These estimations were in accord with projections arrived at by Dames and Moore, geological consultants to the Wastewater Management Program, in their pre-construction geological testing at N-5.

Computations produced the idealized sub-surface N-5 profile shown in Figure 5.08--seen in a north-south section taken along the west edge of excavation. Accordingly, monitoring was keyed to this anticipated stratigraphic sequence, and monitors were alerted to identify the various strata and collect samples therefrom, or to identify any significant deviation from the predicted components. Considering the large area being excavated, it was realized as well that considerable variations in the types of fill might be encountered.

The archaeological monitors also bore the responsibility for assembling a representative sample of the cultural materials uncovered at the N-5 site (Pastron 1977b:35). In this context, the monitor's task waxed and waned depending on the intensity of construction activity at the site and the relative barrenness or richness of the artifact deposits being exposed. Excavation at the site was continuous over the period described, with two sorts of exceptions. Work ceased in rainy weather, winter storms sometimes producing hiatuses of a week. Far less frequently work was also halted because of major equipment breakdowns at the site. Most often, however, excavation and monitoring were continuous, halted only sporadically by bad weather.

At times, excavation equipment encountered sizeable concentrations of trash. When the backhoe bucket bit into these pockets, bottles and jars came tumbling out like candy from a ^ñpinata. In such cases, work was halted to enable the monitor to assess the context of the find. Sometimes excavation would be shifted to allow the monitor to make notes, record measurements, and collect and label a sample of artifacts. Given the pressures of time and cost in construction, however, the opportunity granted the monitor was usually brief, and the complexities of single-handedly attempting measurements in a vast site, taking notes, and bagging and tagging artifacts made the job a very difficult one. At several points during the work at N-5, rich collections of cultural materials were exposed over a period of days, and during these phases, additional monitors assisted the single archaeologist regularly on the job.

One such intensive collecting period took place during April 1978, when work near the western wall of the excavation uncovered huge quantities of dumped trash. Some 52 percent of the artifacts catalogued

for N-5 were collected during this month alone, with fully 37 percent collected between April 10 and 21. At this time two, and sometimes three, monitors were regularly on duty at the site. Because excavation was often proceeding simultaneously at two places in the large area covered by N-5, monitors found it necessary not only to patrol the main concentration of artifacts in the southwestern portion of the site, but to keep a second area under observation and to record site data as work continued. The regular monitor was charged with seeing that all excavation was supervised during the periods of intensive recovery, while the additional monitors were engaged principally in artifact collection from the dump concentrations (see Figure 5.09).

Compiling soil profiles and recording the composition of soil levels was not a straightforward process. Excavation proceeded at different paces in different segments of the site at different times. To further complicate matters, earth was continually moved around within the site, being redeposited or stacked before it was lifted away by loading machines and eventually removed by trucks. Excavation cuts were regularly large and deep, precluding detailed or refined stratigraphic observations by the archaeological monitors. On occasion a single monitor would return to N-5 from checking progress within another sewer alignment to discover that an area he had wished to observe closely had been completely excavated or disturbed by heavy machinery. Under these difficult circumstances, the archaeological monitors did their best to record the provenience of discoveries and, more importantly, to tie together observations from different parts of the site. Although precise information concerning particular artifacts could seldom be recorded, it was generally possible to trace and relate the main stratigraphic components at N-5 to the known historical sequence of events and to provide a general, if not a specific, context of recovery for artifacts.

Throughout the monitoring program at N-5, the pace of archaeological activity ranged from almost leisurely observation to fast-paced data recovery. When dense concentrations of archaeological materials were encountered, as many as four monitors worked busily for a full week. Since archaeological data recovery had to keep pace with excavation, little time existed for refined techniques of scientific methodology. Each day

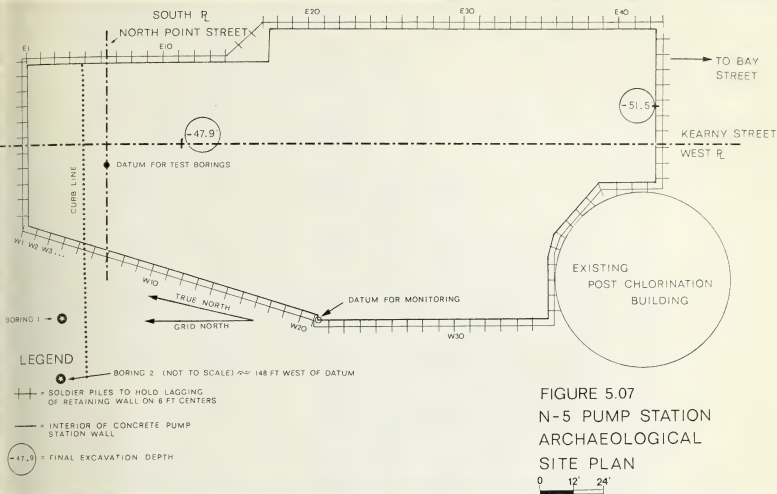


FIGURE 5.07
N-5 PUMP STATION
ARCHAEOLOGICAL
SITE PLAN

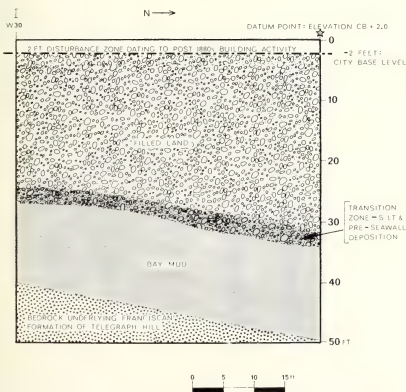


FIGURE 5.08
ANTICIPATED SUB-SURFACE PROFILE:
WEST WALL OF N-5

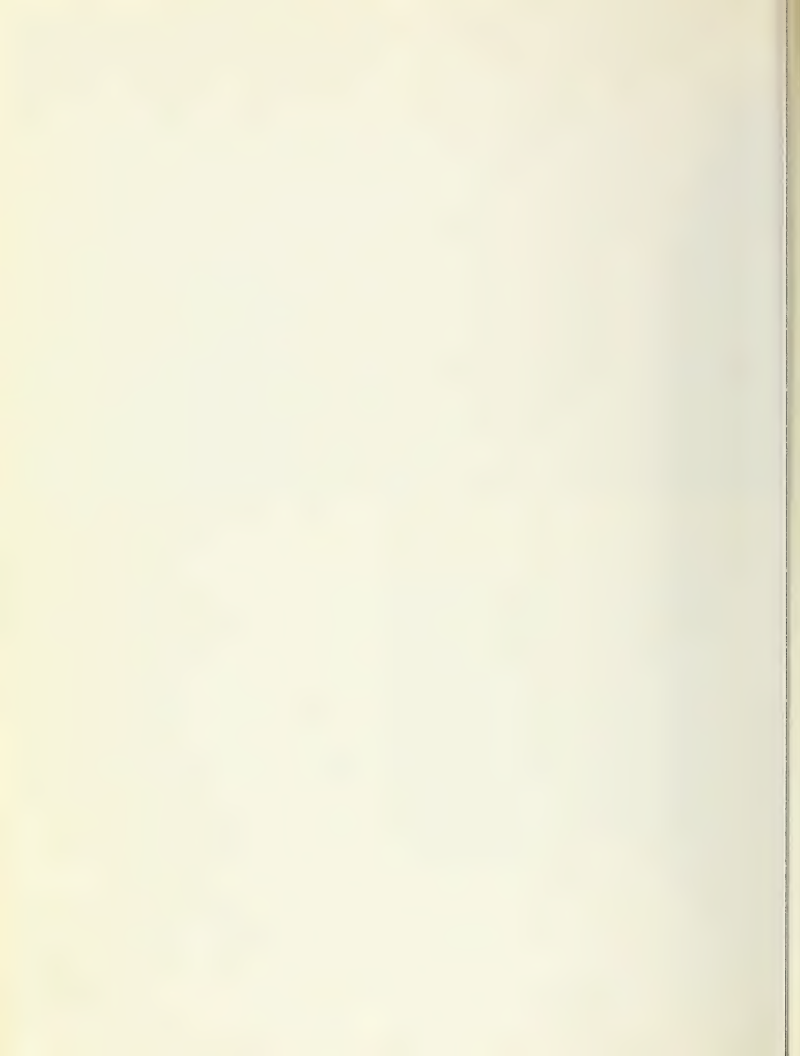




Figure 5.10: Concrete Platform Exposed Prior to Removal, March 29, 1978. . . This platform, still of undetermined function, possessed a narrow "neck" (1) dividing it into two unequal-sized surfaces. At the left of the photograph is the "retaining wall" (2) made of unreinforced concrete. The eastern end of the platform lay at the edge of Kearny Street (3). (Jack Prichett)



Figure 5.09: Archaeological Monitors at N-5. . . worked alongside bulldozers and cranes to examine the heavy, black, clayey landfill which proved to be laden with concentrations of artifacts dating from the early 1880s. Visible in the rear of the photograph is the foundation of the round Post-Chlorination Building (1), while to the west the soldier piles and wooden lagging (2) mark the edge of the excavation (see Figures 5.01, 5.07 and 5.13). (Jack Prichett)

the monitors would make their way into the excavation a few steps ahead of the heavy equipment to collect as large a sample of archaeological materials as possible. Given this situation, the use of screening equipment was precluded and, as a general rule, the larger, more noticeable or intact specimens were collected at the expense of smaller, less visible or broken pieces. When several archaeologists were on the site at the same time, or when the pace of excavation was slow, it was possible to record information regarding the occasional features encountered. Construction conditions rarely allowed sufficient time for thorough documentation of these structural or stratigraphic remains, however, and in retrospect, while some contextual data was gleaned from the on-site monitoring program at N-5, it is clear that the bulk of the archaeological information was gathered from careful analysis of the artifacts following the completion of the field investigations.

DATA FROM THE N-5 SITE

Features

Only two archaeological features were recorded during the monitoring of excavation at N-5. This paucity of architectural remains reflects the block's relatively unintensive use in the past century. In comparison, a downtown or South of Market block, or even blocks further west along North Point Street, would have a vastly greater number of structures and activities documented by structural remains (**San Francisco Waterfront: 617-658; Olmsted, Olmsted, Pastron and Prichett 1979**).

The site's first feature appeared immediately after ground was broken near the center of the N-5 plant, about halfway between North Point and Bay streets (excavation had proceeded for more than four months at both the northern and the southern ends of the site before reaching this point). The monitor's field notes for March 28, 1978, record that:

Drilling for placement of soldier pile during February uncovered portions of a concrete wall and foundation along the south/west portion of the construction site. The remainder of this obstruction was uncovered during the latter part of this week. The wall, and what appears to be a stoutly constructed loading platform, is located along the southern portion of the site, between pilings W32 and #28 to the west, and E32 and E28 to the east. The uncovered structures extend eastward from the west piling line to the approximate curb line of Kearny Street, a distance of 70 feet. The platform, which is even with street level, is in two sections. One is 8 by 20 feet, the other, 12 feet east, is 8 by 38 feet and connected to the smaller platform by a 3-foot-wide sloping concrete wall. The platforms are set on evenly spaced 16" steel jacketed concrete piers reinforced with 1/2-inch square rebar. A 12-inch steel I-beam is placed on top of the piers and 10-inch steel I-beams cross these 12-inch stringers at 2-1/2-foot intervals. The steel is then encased in 2 feet of concrete to form the platform top. The connecting wall between the two platforms is 4 feet thick with a 4-foot base and is non-reinforced, lean concrete.

The concrete wall, located 10-1/2 feet north of the platform, is again level with the street, and extends the length of the platform (70 feet). It is one-foot thick, extending four feet into the ground. Like the platform connection, the wall has no reinforcement and is made of lean concrete.

A photograph taken the following day, when the structure was fully visible, records the scene (see Figure 5.10). Figure 5.12 shows a section

view of the platform compiled from observations made as the structure was torn up. The steel jacketed concrete piers are those which appear in the photograph. Excavation to pour the concrete for the platform would have necessarily extended to at least 2-1/2 to 3 feet beneath the 1978 surface to allow installation of forms and perhaps slightly deeper, while excavation for construction of the "retaining" wall to the north of the platform would have gone to a depth of at least 5 feet. The pilings on which the platform rests extended downward an unrecorded depth, and while the area disturbed by their penetration is relatively small in proportion to the size of the entire site, it is clear that they represent a form of intrusive activity penetrating deep into the original fill layer, possibly forcing artifacts from later periods down into the 1880s fill.

Several aspects of this platform deserve mention. First is its extremely heavy mode of construction. Ten-inch steel I-beams set atop 12-inch I-beams and encased in concrete provide a support capable of bearing extremely heavy loads. Second is the odd configuration of the structures, which consists of the two powerfully built platform surfaces just described, which are linked by a non-reinforced, much narrower connector (see Figure 5.11). Moreover, this connector, rather than being rectangular in cross-section, is "A"-shaped with sloping walls. The functional relationship of the "retaining wall" (also of non-reinforced concrete) to the platform, with which it is parallel, is unclear, since the two are separated by some 10-1/2 feet.

What was this "platform"? When was it constructed, and which of the site's buildings was it part of? Field notes record that the north edge of the structure lay some 136 feet south of the property line of North Point Street, or just about midway across the block. This would suggest that the platform underlay the railroad spur and provided extra support for rail traffic over bayside fill. On the other hand, the "connector" separating the two sections of the platform would then seem senseless, particularly since it was only 1 foot wide at the top and 3 feet at its widest.

Another possibility is that the "platform" was originally the foundation for a building. If there is an error in the field notes and the structure were actually 10 feet farther south, it would fall along the line

of the north wall of the Old Harbor Warehouse #3. This warehouse is recorded on a Wastewater Management plan showing existing buildings to be demolished in 1948 for the new North Point Sewage Plant as a three-story brick building (plans on file in the Engineering Section of the Wastewater Management Program). Again, however, the reason for the "connector" is unclear, as is the fact that the "foundation" does not extend all the way to the Kearny Street property line.

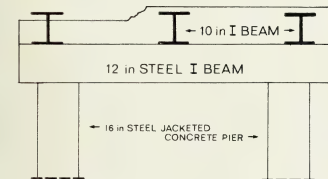
That the concrete structure was a platform for trains loading and unloading into Harbor Warehouse #3 next suggests itself as a possibility. The top of the platform was located only a few inches below the present grade, meaning that the rail tracks would then have been some three to four feet below grade; the Sanborn maps, however, do not note recessed tracks. Again, the sloped "connector" also means to rule out effective use as a loading platform.

A fourth possibility is that the platform was built for some specific purpose during the 1948-1949 construction of the present sewage treatment plant. The heavy, reinforced platform would possess the strength to support a large crane, for instance.

All four possibilities were checked thoroughly against documentary evidence, and inquiries were made with agencies directly involved with the site in the past. The search for the origin of the mysterious platform also led to a thorough review of Sanborn maps and several volumes of block books. These sources provided evidence that the site had been occupied by the two harbor warehouses from the second decade of this century through 1948, when they were demolished to make way for the sewage treatment plant. The possibility that the platform had supported the trackbed was checked with the engineering department of the San Francisco Port Authority, whose records of the waterfront area, including plans of the Belt Line Railway, go back to 1865, but their records indicated no such structure. Officials at the North Point Treatment Plant and in the engineering department of the Wastewater Management Program were shown the photographs and plans of the platform, but the existence of the possible uses for the platform were unknown to them. A search of the Wastewater Management Program's engineering records uncovered the construction plans and drawings for the North Point plant including the

W32 W31 W30 W29 W28

FIGURE 5.12



SECTION A-A'
CONSTRUCTION OF PLATFORM

0 1 2 3ft

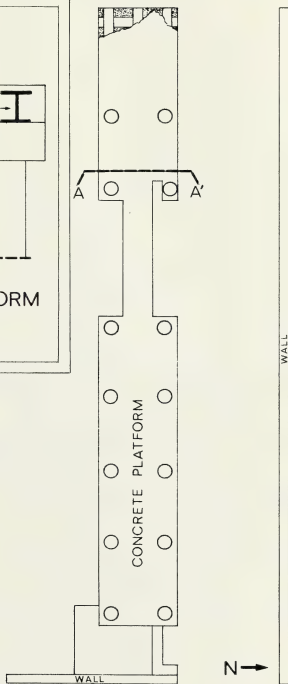


FIGURE 5.11
PLAN VIEW OF
CONCRETE PLATFORM

0 5 10 15ft

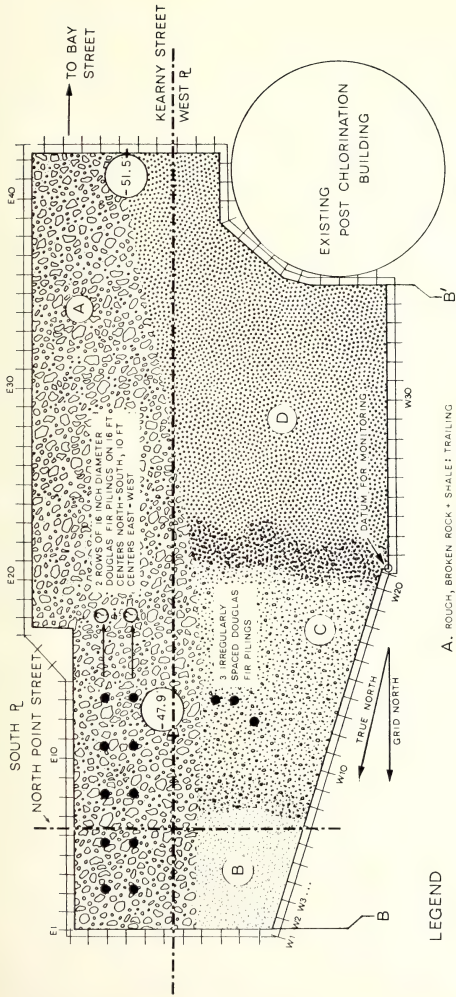


FIGURE 5.13
N-5 PUMP STATION
ARCHAEOLOGICAL

SITE PLAN : SOILS EXPOSED AT
12 FEET BELOW DATUM
0 12 24 ft

LEGEND

++ = SOLDIER PILES TO HOLD LAGGING
OF RETAINING WALL ON 6 FT CENTERS

— = INTERIOR OF CONCRETE PUMP
STATION WALL

⊙ -47.9 = FINAL EXCAVATION DEPTH

A. ROUGH, BROKEN ROCK + SHALE: TRAILING
EDGE OF 1880 SEAWALL

B. FINE GREY BEACH SAND CONTAINING HALIOTUS
+ MYTILUS SHELL - VERY FEW ARTIFACTS

C. SAND MIXED WITH REFUSE DEPOSITS OF "D"
ARTIFACTS INCREASE IN SOUTHERN PORTIONS

D. BLACK SANDY FILL HEAVILY LADEN WITH
CONCENTRATIONS OF DUMPED ARTIFACTUAL
MATERIAL

"demolition plan", a drawing showing existing buildings on the site to be removed prior to construction. This plan indicated that Harbor Warehouse #3 was a three-story brick building and showed the railroad tracks running between it and the one-story wooden Warehouse #2 to the north. Another pre-construction drawing showing sub-surface profiles of the site included sections drawn through several points--one very near the platform--but made no notation of a large sub-surface feature. Finally, Kino Fraschina, the first superintendent of the newly opened treatment plant in 1949, was unable to recall seeing or hearing about the "platform" (personal communication).

Hence, neither an exhaustive search of documentary sources, nor questioning of persons closely allied to activities on the N-5 block, produced a positive identification of the concrete platform revealed by excavation at the N-5 site in 1978. To date, the most plausible explanation of the feature is that it somehow served as part of the warehouse apron or loading dock. This assumption is based largely on two observations. First, if this structure had been built after 1949, it would certainly have appeared in the records and plans of the North Point sewer plant or been known to Superintendent Fraschina. Second, the archaeological monitor noted that red brick rubble--almost certainly that of the three-story warehouse--was found immediately to the south of the structure and lying against it, but not to the north. This suggests that a platform existed at the time Harbor Warehouse #3 was demolished, which allowed rubble to be spread up to it, but not beyond it.

A final possibility is that the platform was erected for some purpose during construction of the North Point plant in 1948, perhaps as a support for a crane or some extremely heavy piece of equipment. Again, however, the construction plans for the plant fail to indicate such a structure. In short, then, despite the lack of positive documentation, it seems reasonable to assume that the concrete platform comprised part of Harbor Warehouse #3 and that it was covered over in 1948 along with the rest of the block's warehouse remains.

The second feature found at N-5 consisted of two sets of Douglas fir pilings, whose tops rose to within three to four feet of the ground surface. As shown in Figure 5.13 one configuration of these pilings consisted

of two rows with a north-south alignment. The 16-inch pilings were set on 16-foot centers north-south, and spaced 10 feet apart in the east-west direction. Since these pilings fall entirely within the lines of Kearny Street, it is assumed that they represent the remains of O'Neill's Wharf, mentioned earlier in conjunction with the lithograph showing the site in 1877 (see Figure 5.02) or of a causeway built to dump fill along Kearny (see above). To the west of these two rows off the line of Kearny were found an additional three irregularly spaced pilings. These may represent the remains of some structure erected during construction of the seawall or as a temporary trestle for carts delivering loads of fill. The pilings may also have been some of the necessary supports for the buildings erected on the newly created land.

Artifacts

The main body of artifacts at N-5 was concentrated in the fill material between the depths of 7 and 20 feet in the southwest corner of the site, just north of the post-chlorination building (see Figure 5.13). At roughly 20 feet, the density of artifacts decreased sharply, although the soil was much the same. This situation is shown in Figure 5.14, a profile of the west wall of the excavation. The depths involved correspond well with the predictions made on the basis of present and past elevations (see Figure 5.08). There existed no sharply marked distinction between the fill material--easily recognized when it is full of artifacts--and the bay bottom. Instead, the fill simply shaded into a very similar dark brownish-black mud, bearing almost no cultural material. This soil layer represents the siltation occurring on the bay bottom during the years prior to the construction of the seawall and filling.

In the area just described, artifacts numbered scores of thousands, and, at times, clusters of items seemed to have been dumped simultaneously, perhaps as a wagonload of trash (see further discussion in Chapter 12). Certain classes of artifacts--white stoneware mugs, plates, and spittoons, for example--were immediately visible when exposed, as were pieces of Chinese porcelain or celadon, because they contrasted strongly in color with the brown-black soil matrix of the original fill material. Whole bottles, or nearly complete fragments thereof, were also numerous (see

Chapters 6, 7, 8 and Appendix B). Soda bottles bearing embossed labels were especially well represented, with unembossed beer bottles present in slightly larger numbers in the collection. Since the use of embossing on beer bottles became common only in the late 1880s and 1890s, the absence of embossed beer bottles, when coupled with the verified dating of the soda labels (see Chapter 8), confirms the notion that the richest artifact bearing matrix at N-5 derives from the early 1880s filling behind the seawall.

Some later deposition may have taken place at the site as well. Among the European style ceramic artifacts, for example, some 10 manufacturer's marks seem to indicate post-1880s origins (Appendix D). One bottle (N5-EE-152) is unmistakably of modern, automatic machine-made manufacture, dating certainly after 1903, the date of the first patent on the fully automatic bottle-making machine (Scoville 1948).

The presence of these later-vintage artifacts may result from one or more possible factors. First, the block stood vacant until at least 1901, with the exception of the Seawall Hotel. Although the major filling along Kearny had been completed in the early 1880s, occasional deposition of trash or single artifacts probably continued to occur. The Seawall Hotel doubtless used the Kearny and Bay Street corner of the block as a convenient refuse disposal spot over the years. The disturbance of the upper soil layers in the area of the concrete platform (discussed above) must have deposited some of these later artifacts to a depth of five feet below surface or more. The pilings for the platform may have deposited others deeper. Finally, the use of heavy excavation equipment at the site may have disturbed the area as well as making precise stratigraphic control over excavation impossible. Doubtless, some artifacts from the site's upper levels were mistakenly attributed at their time of collection to have come from the lower, original fill layer.

Considered as a whole, the artifact assemblage at N-5 seems to represent the deposition of household and restaurant refuse, mixed with a smaller amount of industrial discards. The Chinese artifacts, for instance, are overwhelmingly food-related, suggesting that trash from the numerous restaurants and boarding houses of that crowded district was being disposed of at N-5 (see Chapter 9). The large representation of soda, beer, and

other beverage bottles in the bottle collection, together with the numerous drug bottles, again suggests household, restaurant, saloon, or small business refuse. In contrast, pulleys, heavy machine parts, and other indications of industrial dumping are nearly absent from the collection. Reflecting San Francisco's continuing role as a center for precious metals assaying and refining, one exception is the recovery of ceramic crucibles (see Chapter 11).

The layer holding most of the artifacts described in the following chapters was the original bay fill deposited during the early 1880s. Its upper surface begins some seven feet below present ground level. As work proceeded beyond the seven-foot level, no stratigraphic evidence of any disturbance from the installation of the concrete platform described earlier was found, with the exception of its piling support. The fill matrix below seven feet consists of a dense black sand-laden soil, occasionally containing bits of straw or peaty-like organic material and laced with nails, bits of broken glass, and pottery sherds, most frequently of white stoneware. Complete vessels were often visible at the bottom or in the sidewalls of the excavation.

This soil horizon extended across much of the site at 7 feet below the datum, but it extended deeper as a discrete soil component of the west side of the site. On the eastern side, a fill layer of broken Franciscan sandstones underlay the dark, refuse-laden "dump" layer. This rock deposit sloped downward at a slight grade from east to west, disappearing entirely near the middle of the site, just west of the property line of Kearny (see Figure 5.13). It was first encountered at about -9 feet at the east and -11 feet near the Kearny Street line where it faded out. Its trailing edge roughly parallels the line of the seawall along the Embarcadero, but it is removed about 300 feet from the line defining the city front. Since the Embarcadero right-of-way was fixed at 200 feet, this rock technically constitutes fill placed behind the wall, rather than part of the wall itself, even if it does comprise part of the wall's landward slope.

In the northwest portion of the site, fine grey beach sand was encountered almost as soon as the asphalt on North Point Street was

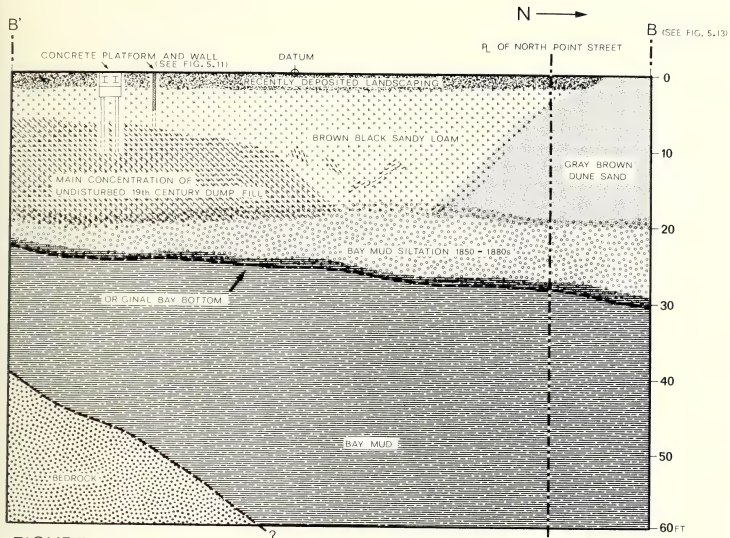


FIGURE 5.14

N-5 PUMP STATION: SOIL PROFILE OF WEST WALL OF EXCAVATION, SECTION B-B' (SEE FIG. 5.13)

broken. This sand extended south to about Piling #9 or some 50-60 feet from the north edge of the cut (see Figure 5.13). It was sterile of artifacts, but contained occasional bits of *Haliotis* (abalone) shell. This sand shaded gradually into the dense black artifact-bearing soil of the dump deposits and showed an increasing yield of artifacts as digging progressed from north to south. This deposit of sand exhibited a sharply sloped trailing edge when seen in profile, rising nearly to the surface at the property line of North Point Street (see Figure 5.14). Two exploratory borings placed in the street at the end of the N-2 alignment immediately to the north of the N-5 excavation revealed that the sand began immediately below the surface, extending downward at least 20 feet. These two facts together suggest that the sand comprised part of a relatively sterile fill placed over the rock of the seawall and immediately behind it. Test Borings #1 and 2 (see Figure 5.07) further to the west and a greater distance from the seawall encountered the dense black artifact-laden fill found in the southwest quadrant of the N-5 site, providing more confirmation that the sand fill was confined primarily to locations adjacent to the seawall. (This point is more thoroughly discussed in Chapter 3 above).

ARTIFACT TYPES

Because of the large number and the diversity of artifacts collected at N-5, they are discussed in the several chapters which follow. Variation within types, stylistic analysis, and historical commentary on commercial brands represented in the collection are among the issues treated. In Chapter 9, the Chinese artifacts are first used as a lens for examining aspects of nineteenth-century assimilation of the Chinese into American life and then compared to the range of artifact types found at other California and western sites. The wine and the soda water producing industries, as seen through the bottles collected at N-5, form the topics of Chapters 6 and 8. Pharmacist Frank Sternad discusses the various types of bottled drugs evidenced by the N-5 finds in Chapter 7, while the various kinds of European style stoneware found at N-5 are treated in Chapter 10. Chapter 11 looks at ceramic dolls and doll parts from the site and offers some thoughts on dating these popular heirloom artifacts.

FOR COMMERCE AND PLEASURE: CALIFORNIA'S WINE INDUSTRY
SEEN THROUGH WINE BOTTLES AT N-5

The task before us lies in teaching our people
how to drink wine, when to drink it, and how
much of it to drink.

Arpad Haraszthy, cellarmaster,
Buena Vista Vinicultural Society c. 1880

Ivor Noël Hume has noted that it is essential for historical archaeologists to be fully familiar with archival sources relating to the sites and subject matter they wish to investigate if they hope to glean the fullest possible knowledge from their field research (1964:19). By acquiring this historical background, archaeologists are frequently able to weave together significant skeins of information from fragmentary or seemingly non-diagnostic assortments of artifactual materials.

A case in point is the collection of wine bottles recovered from the N-5 dump site during the course of archaeological monitoring of excavation and construction. On the surface, this collection, like many similar assemblages of wine bottles recovered from nineteenth-century archaeological sites in the United States, lacks distinction, having no exotic container shapes and few diagnostic labels or seals to guide the investigator. Yet, an analysis of these artifacts, coupled with a careful examination of appropriate documentary sources, makes it possible to present a considerable corpus of interpretive information about the collection.

The remains of 42 wine bottles were recovered from the N-5 dump site. This moderately-sized collection of predominately intact glass containers represents a range of the most common types, shapes, and

sizes of wine bottles which could be found during the late 1800s in the home, wine shop, restaurant, or winery. Hence, the bottles provide a basic sample of wine containers which could be salvaged from any typical nineteenth-century archaeological site.

This chapter sets forth a typology for the wine bottles recovered at N-5 and, as far as the data permits, attempts to identify the approximate places of origin of these containers as well as the types of wine they held. It also comments upon the quality of California's wines during the second half of the nineteenth century and the ways in which prevailing patterns of production, distribution, and sale influenced trends in imports and exports. Finally, it provides a brief profile of San Francisco's wine-drinking public in the period. To accomplish these goals, it succinctly examines the salient aspects of the evolution of the nineteenth-century wine trade in California as well as the relationships which were forged between this incipient industry and its older, more established counterpart in Europe. While the immediate purpose of the pages that follow is to shed light upon the N-5 collection of wine bottles, a number of broader, base-line generalizations are also established which may be of use to historical archaeologists working with similar assemblages of nineteenth-century artifacts in California.

DEVELOPING THE WINE INDUSTRY IN CALIFORNIA

Franciscan friars, led by Junipero Serra in their northward journey along the westernmost edge of the New World, were responsible for the introduction of grapes into California. These first European vines, probably of Spanish origin, produced a fruit aptly named the Mission grape, and as the sole variety planted by the Fathers, this red wine grape remained a principal element of the California wine industry for many decades.

The state's first plantings were made at Mission San Diego de Acala soon after its establishment in 1769, and as Father Serra and his followers continued their northward expansion, they established 21 mission sites throughout Alta California. At each of these missions, the Franciscans planted vines and produced wine for use by the clergy (Balzar 1978:79). In 1823, Mission San Francisco de Solano, the last and northernmost of the Franciscan outposts, was built in what today is Sonoma County (Carosso 1951:2).

In 1834, the Mexican government issued the Decree of Secularization which formally terminated the faltering mission system in California (Latimer 1979:13). Accordingly, the Franciscan priests were largely stripped of their authority, and the bulk of the mission properties were divided among private landholders. This act opened the way for the cultivation of grapes by a number of industrious individuals who would soon discover the adaptability of the vine to California's terrain and climate. It also laid the foundations for the emergence of the state's viticultural industry.

By 1831, Los Angeles County possessed about half of the grape vines growing in California. This concentration of over 100,000 vines made the Los Angeles area the focal point for people interested in the business of grape growing and wine making (Carosso 1951: 3-4). Southern California would remain the state's viticultural center until the Gold Rush sparked Northern California's wine industry to life.

In 1834, a Frenchman named Jean Louis Vignes (an apt name meaning "vines" in French) bought a large plot of vineyard acreage on the present-day site of Los Angeles Union Station and embarked upon the task of establishing California's first commercial winery. At Vignes' successful El Aliso, as the domain came to be known, the first plantings of French grape varieties

occurred in California. Vignes' choice cuttings of European vines traveled an arduous and lengthy route to Southern California from France via Boston and around Cape Horn, and by 1839, El Aliso had over 40,000 vines under cultivation (Ibid.:9).

Vignes produced his initial vintage around 1837, marking the beginning of a seasonal and bountiful production of red and white wines, as well as brandy. By 1840, Vignes' ship, the **Mooson**, was carrying regular shipments of his wines and spirits to settlements up and down the California coastline. The citizens of Santa Barbara, Monterey, and Yerba Buena (as the San Francisco outpost was known at that time) eagerly paid a hefty \$4 a gallon for brandy and \$2 a gallon for white wine (Ibid.).

As the early vineyards and wineries of the southlands flourished, the aboriginal inhabitants of Northern California continued a way of life which they had known for over four thousand years. More than 5000 Indians, primarily Wappo speakers, lived in and around the fertile Napa Valley when the first white men appeared in the 1830s (Kroeber 1970: 217-221). In less than four decades, virtually all the natives were annihilated by the ravages of cholera and smallpox introduced by the newcomers (Hinkle 1979:16).

George Calvert Yount obtained the first land grant from the Mexican government to settle in the Napa Valley in March of 1836 (Ibid.:17). By 1838, Yount had planted his first vines, and by the early 1850s his vineyards were yielding 200 gallons of wine a year (Ibid.).

In 1834, the carefully tended vineyards of Mission San Francisco de Solano in Sonoma County were taken over by General Mariano Vallejo when these mission lands were secularized. Commandant of the Pueblo of Sonoma, Vallejo worked to develop the harsh Franciscan product into a palatable, pleasant wine. In part because of General Vallejo's viticultural success, other budding winemakers were attracted to Northern California, where they introduced new varieties of grapes to the Sonoma area--Muscats, Isabellas, and Catawbas, to name a few (Latimer 1979:19). The promising wine region expanded slowly, however, until 1848 when the cry of "Gold" changed the entire course of California's development.

With the advent of the Gold Rush, California's fledgling wine industry began a steady ascent into the realm of "big business". What had been



Figure 6.01: Bottling Wines at the Buena Vista Winery, Sonoma. .Workers demonstrate the hand-corking and packaging of wine in this photo taken by Eadward Muybridge in the 1870s. (Bancroft Library)

for decades a relaxed enjoyment in cultivation of the vine suddenly offered the potential of overnight commercial success when Northern California's burgeoning population demanded a readily available alcoholic beverage.

Included among the thousands of gold seekers were a variety of Frenchmen, Germans, Italians, and others who had been raised with the fruit of the vine and were well versed in the arts of winemaking. When the quest for the shining ore proved less lucrative than most had hoped, a substantial number of these immigrants turned to more familiar endeavors to make their livings. Thus, California was bestowed with some of her finest early winemakers.

Although Los Angeles still had a monopoly on grape and wine production in the 1850s, the growing metropolis of San Francisco and the teeming gold fields encouraged the growth of a local industry that was closer to the source of consumption. As a result, far-sighted agriculturists made extensive plantings of vines in the counties around San Francisco Bay and even in the mining regions of the Sierra Nevada in the early 1850s (Carosso 1951:17).

The late 1850s and the 1860s marked a turning point for the fledgling California wine industry, primarily because of the remarkable insights and efforts of a Hungarian exile named Colonel Agoston Haraszthy de Mokesa. Considered by many to be the father of California's modern wine industry, Haraszthy was the first **vigneron** to introduce and cultivate foreign vines on a large scale in California. Over 1400 varieties of grapes from the fine vines of France, Germany, Italy, Spain, Portugal, and Hungary (Carosso 1951:52) were grown at his Buena Vista Winery in Sonoma where the flourishing vineyards attested to the suitability of the warm, sheltered valleys of California for the cultivation of exotic grapes. (Scenes of the day-to-day operations of the early Buena Vista Winery can be seen below in Figures 6.01 and 6.02.) Haraszthy's viticultural efforts demonstrated to the rest of the state's winemakers his belief that "the quality of the grapes governs, in great measure, the quality of the wine" (Ibid.).

While the economy of the eastern United States was disrupted by the Civil War, California's wine industry boomed. Aided by improved growing techniques, new grape varieties, the failure of the eastern winemakers to plant anything other than indigenous varieties, and the

anticipation of the positive effects of the transcontinental railroad, the viticulturalists of California forged ahead to make wine production the seventh most productive commercial endeavor in the state (Ibid.:74). From some quarter-million gallons of wine produced in 1860, California's production jumped to two million gallons by 1869. The state's active export trade dealt largely in high quality white, sweet, and sparkling wines, with San Francisco as the chief wine market and export center (Ibid.:76).

For the first half of the next decade, the trends that had emerged in the 1860s continued unabated. By the early 1870s, nearly four-fifths of California's counties had large-scale plantings of vines. El Dorado, Solano, Yuba, Santa Cruz, Santa Clara, Sacramento, and Tulare counties established themselves as close competitors with the state's leading viticultural centers in Napa, Sonoma, and Los Angeles (Ibid.:89).

Unfortunately, the prosperity that the California vintners had enjoyed for nearly a decade came to an abrupt halt in 1873, when the worst depression the United States had yet suffered crushed the national economy. By 1875, the California wine industry was feeling the depression's full effects. Overproduction created a glut of California wines on the market, and unscrupulous speculators and untrained vintners lowered the quality of much of California's wine. For this reason, Californians drank very little of their own product during these troubled years, and by the mid-1870s, America's craving for wine was largely satisfied by European imports (Ibid.:96). By 1876, California's out-of-state and foreign trade had dropped to next to nothing (Ibid.:95), and the state's wine industry hit an all time low. Wine went unsold at 10-15¢ a gallon, except to vinegar manufacturers, and it became more profitable to feed grapes to livestock than to crush them for wine.

Not until 1878 did the Golden State begin to recover from the ravages of this depression. Wine prices slowly began to improve, and by 1880 profits were once again gaining momentum. Ironically, the depression also conferred a number of unanticipated benefits upon the wine industry. Many of the novices and speculators were flushed from the wine business, having found grape growing to be an unsatisfactory investment, and this led directly to a general improvement in the quality of the wines produced in California. Winemakers also began to fully appreciate the advantages



Figure 6.02: The Harvesting of Wine Grapes. . . In the 1870s the season's yield was picked by hand and loaded onto horse-drawn carts. A century later, the process has remained nearly unchanged. This photo was taken by Muybridge at the Buena Vista Vineyards in Sonoma. (San Francisco Wine Institute)



Figure 6.03: Nouveau Medoc Vineyard and Cellars of Oakville, Napa County. . . This vineyard was named by owners Brun & Chaix after the famous French winegrowing region, perhaps in hopes that California would become the "new" Medoc or maybe to add a distinguishing touch to the winery. This was but one of many new vineyards to spring up in California during the late 1800s. (San Francisco Wine Institute)

of producing good wines from fine grapes, and large numbers of foreign vines were planted throughout the state. The single greatest stimulus for the reviving industry after 1879, however, was the wholesale destruction of the vineyards in France by the tiny vine louse known as **phylloxera** (Lichine 1977: 362-363). This aphid-like pest, native to the eastern United States and harmless to indigenous vines, was unwittingly introduced to the European vineyards where it spread like wildfire.

Between 1880 and 1885, California experienced her second viticultural "boom". With unprecedented growth in the number of new wineries, California gained some 100,000 acres of vines between 1880 and 1884 (Heintz 1977:30). In Napa County alone, wineries tripled in number from 49 in 1881 to 116 by 1891, according to the **St. Helena Star**, and the **Sonoma Index-Tribune** reported similar statistics for the neighboring county (Heintz 1977: 16-17). A few of the wineries founded during this time include the Italian Swiss Colony, Korb, Geyser Peak, Estee Winery, and Nouveau Medoc, a stuccoed winery created by Jean Adolph Brun and Jean Chaix which stood next to the railroad in Oakville (see Figure 6.03) (Hinkle 1979:24, 61; Latimer 1979:71, 121; Robards 1977:229). By October of 1883, the **San Francisco Merchant** noted that the state's annual harvest had yielded 10 million gallons. (**San Francisco Merchant** 1883:2). The **San Francisco Merchant** also claimed that two-thirds of the 11 million-gallon harvest of the previous year had been consumed on the West Coast, with more than half that amount probably drunk in San Francisco (**San Francisco Merchant** 1883:82). Foreign trade and out-of-state shipping had picked up once again by the early 1880s, but this was largely due to the drastic decline in French wine production.

By the mid-1880s, the insect that had devastated the fields of France had found its way to California on imported vines and begun a deadly assault on the West Coast's vineyards. Coupled with the effects of another economic depression, this brought about a second major decline in California's wine industry within two decades. Not until the early 1890s did the Golden State's vintners recoup their former productivity and profits.

The N-5 dump site had been completely filled in by the late 1880s, however, and additional discussion of the periodic vicissitudes of the California wine trade is unnecessary. (Readers seeking more information

on the subject are referred to Carosso 1951, Heintz 1977, Lichine 1977, the San Francisco Merchant, and the Pacific Wine and Spirits Review.)

FACTORS COMPLICATING THE IDENTIFICATION OF WINE BOTTLES

In attempting to identify and classify the types of wine bottles recovered from nineteenth-century sites, the archaeologist must be aware of a number of substantive difficulties which complicate the process. This section sets forth and discusses some of these obstacles.

Historically, one of the major stumbling blocks for the budding California wine trade was the lack of bottles in which to store and ship the product. During the Mission period, wine was simply stored in cowhide bags and clay pots (Heintz 1977:20). In the Gold Rush years, when the state's wine production was in an infantile if enterprising stage, Matthew Keller, one of California's leading vintners, bemoaned the fact that "another great want is a bottle manufactory, that we may store our wine" (Carosso 1951:23). By the late 1850s, California still could claim no major bottle manufacturer anywhere in the state. To satisfy this urgent need for bottles, empty containers once holding imported wine were recycled and filled with California vintages over and over again. The scarcity of bottles and the surge in production of domestic wine soon "drove the price of bottles to as much as eleven or twelve cents apiece" (Ibid.:35).

In 1862, Charles Kohler, the founder and proprietor of the state's largest wine distributing firm located at 626 Montgomery Street in San Francisco (see Figure 6.04), finally provided a solution to the pressing need for a readily available supply of glass bottles. Incorporating with Taylor and Company of San Francisco, he formed the Pacific Glass Works (Ibid.). Although their enterprise produced all types of glassware, the wine industry's urgent need for bottles created an almost insatiable demand for the new manufacturer's merchandise. On June 16, 1863, the state's first wine bottle was blown at the Pacific Glass Works, and from that time forward, over 60 laborers worked full time to meet California's needs for glass containers.

In 1876, Kohler's Pacific Glass Works merged with the San Francisco Glass Works located near what had once been the shores of Mission Bay. This new amalgam, the San Francisco and Pacific Glass Works (see Figure 6.05), was located near the C-1 alignment; it is discussed at length in **San Francisco Waterfront** (pp. 85-91). Pieces of slag glass from this manufactory were recovered during the course of archaeological monitoring of the C-1 sewer segment.

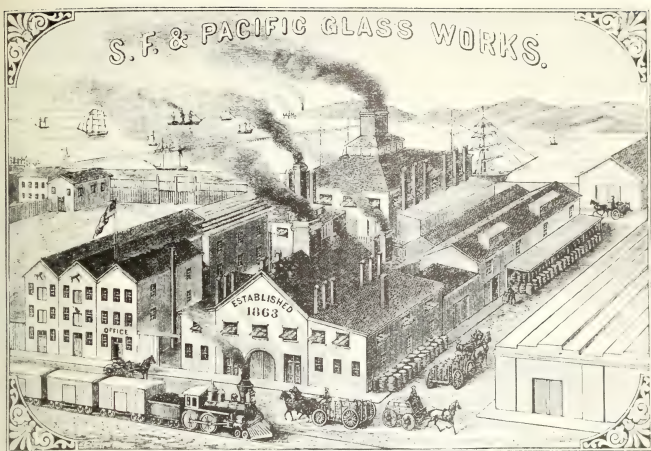
The appearance of a glass manufacturer in the state, however, did not signal an end to the California wine industry's use of European bottles. In *Wines and Vines of California or a Treatise on the Ethics of Wine Drinking*, Wait comments about the manner in which wines were packaged at the time, noting that bottles continued to be brought from France "because of their superior make," corks were imported from Spain, and "fancy cork covers" were made in Germany (1889:22). All the champagne bottles used by Arpad Haraszthy & Co. in San Francisco, for instance, were shipped from Europe, and Henry Epstein, a spokesman for the sparkling wine producers in 1883, stated that:

these bottles are all imported. It is a curious fact that American workmen have never succeeded in combining the feld-spar, lime, iron slag and salt, used abroad in the manufacture of champagne bottles, in a manner to produce satisfactory results. . . . Therefore, all are imported from France (Nesfield 1883:17).

Although American manufacturers were able to successfully produce all types of wine bottles, their champagne containers seemed to have structural difficulties. The American technique using iron molds for forming the bottles (recognizable by the seam running the length of the bottle) did not produce a satisfactory "kick-up" or hollow at the bottom of the bottle. This traditional hallmark of champagne receptacles was what enabled the bottles to be stacked neatly into one another during the aging process and strengthened the containers as well. In contrast, the French utilized clay molds that produced sturdy, appropriately shaped bottles able to withstand the extreme pressure produced by the sparkling beverage during its first fermentation (Ibid.:18).

It is also of interest to note that until World War II, the wines of California were most often bought and sold in bulk. Unlike the modern wine trade where case lots are the customary measure for large purchases, the fermented beverage of yesteryear was sold by the barrel (see Figure 6.06). Bottled wine was primarily packaged for and purchased by wealthy customers (Heintz, personal communication).

Throughout the 1880s, unscrupulous labeling and bottling of California wine made it difficult for the customer to determine the true place of origin of the beverage he was drinking. Since no laws governed packaging procedures, many dishonest, profit-hungry dealers on the East and West



MANUFACTURERS OF
Green, Blue and Amber Glassware

ESTABLISHED 1863.

CARLTON NEWMAN, President.

INCORPORATED JUNE 9, 1876.

SAN FRANCISCO DIRECTORY.

Figure 6.05: San Francisco & Pacific Glass Works. . . This amalgam, founded in 1876 by the merging of Kohler's Pacific Glass Works and the San Francisco Glass Works, was one of the earliest producers of wine bottles in California. Located between Berry, King, Fourth, and Fifth streets, adjacent to the C-1 alignment, this thriving establishment's furnaces produced, in addition to finished glass bottles, copious quantities of fist-sized lumps of opaque slag, many examples of which were encountered during the course of the archaeological monitoring program. (Bancroft Library)

Figure 6.04: Storefront of Kohler & Frohling, 626 Montgomery Street, San Francisco. . . Owned by Charles Kohler, this was the largest wine distributing firm in California during the second half of the nineteenth century with offices in New York, Asia, Europe, Russia, and South America. (Society of California Pioneers)



Coasts, as well as in Europe, would deliberately adulterate or mislabel a bottle of wine in order to sell it for the highest possible price. Wait mentions an example of fraudulent packaging by a California broker done with the intention of making a handsome profit from an unwitting public accustomed to "drinking labels": "One large house here. . .has shipped 6,000 cases of claret to New York during the year just passed (1888), in French boxes, nailed with French nails, in French straw, either labeled St. Julien or other Bordeaux imitations" (1889:14).

Nor did the eastern market necessarily obtain California wine in a pure form. What was labeled "California wine" in the East was often little more than a concoction mixed up by a local "back street vineyard" that contained "everything but grape juice" (Ibid.:10). Rather than incur the cost of authentic shipment by rail or ocean-going vessel, local concerns on the East Coast would cash in on the growing reputation of the western wines by bottling substances resembling fermented grape juice and marketing it as California wine. In 1883, the columnist E. H. Rixford wrote that:

There are a number of houses in the East, we know, who profess to sell California wine largely, who only buy pure wines to use as a foundation on which to build up a trade in cheap "stretched", "split". . .and "pasteurized" wines. These rascals do immense injury, because they represent their trash to be "pure California wine", and many people buy their wash and drinking it, believe that is what California produces and naturally do not drink much of it (**San Francisco Merchant** 1883:18).

Europeans also took advantage of the new region's product. Some French businesses imported red wines made in California, bottled it under a foreign label, and then resold it to unwitting American consumers at considerably inflated prices (Wait 1889:13).

So grave was the problem that by the 1880s, it had become difficult to find a sample of native wine packaged under a California label. The only places where an assuredly unadulterated glass of wine could be found was at the wineries themselves (Carosso 1951:153).

Obviously, these factors complicate the process of positively identifying wine bottles found in nineteenth-century archaeological deposits. Nevertheless, consistent patterns exist by which a goodly number of archaeologically retrieved wine bottles can be accurately identified and classified.

BRINGING QUALITY TO CALIFORNIA WINE

The habits and patterns of any consumer group are directly influenced by the quality of the products available to it. Since one goal of the waterfront archaeological research is to attempt to assess whether the bulk of the wine once contained in the bottles recovered from N-5 originated in Europe or California, it is necessary to comment briefly on the caliber of the domestic wines available to the public during the second half of the nineteenth century.

From the time that grape vines were first introduced to the California soil by the Franciscans until the late 1870s, the Mission grape had reigned supreme, although this ubiquitous grape produced a wine that left much to be desired. Charles A. Wetmore, founder of the Cresta Blanca Wine Company, once complained, for example, that wine made from the Mission grape "always gave him a headache and that its brandy drove him to the verge of suicide" (Haraszthy 1978:1). Wetmore's eloquent evaluation of the Mission grape's wine sums up the reaction of much of the rest of the country to the harsh, red, vinous beverage. It was not until well into the 1870s, however, that Agoston Haraszthy's enthusiasm for the planting of foreign varietals began to spread among other vintners.

A number of other problems plagued the struggling new industry. With its promise of big business and ample room for expansion, viticulture attracted many people who viewed winemaking not as an art, but rather as an investment. This "wine rush" encouraged many inexperienced "vintners" who produced very bad wine. Eager to make a quick profit, the speculators did not allow their wines to age, instead releasing to the market immature, acidic, and unpalatable beverages. Trying to imitate established European wines, the untutored viticulturists retarded the development of a unique California product and created the impression that domestic vintners could only produce inferior copies of foreign wines (Carosso 1951:25). It was not surprising, then, that when the depression of the 1870s hit the United States, those who could afford to drink wine preferred to imbibe governmentally controlled French and other imported wines (Ibid.:96).

By the 1880s, however, a great deal of progress had been made by

the state's serious winemakers. Sauterne, Hock, Muscatel, Zinfandel, Riesling, and Burgundy of fine standing were produced and exported (Wait 1889:13) to the East Coast as well as countries throughout Europe, Asia, and South and Central America. This provided a steady demand for the wines which had begun to display the unique characteristics for which the state's vineyards would later be acclaimed. Different regions within California became noted for the general types of wine they produced: warm and sunny Southern California turned out wines high in sugar content such as port and angelica. The northern counties of the Coast Range district--Sonoma, Napa, Lake, Alameda, and Santa Cruz--were known for dry red and white wines similar to those made in Europe (Heintz 1977:14, Wait 1889:35).

CLASSIFYING THE N-5 WINE BOTTLES AND A COMMENT UPON THEIR BEVERAGES

A combination of tradition and function has determined the various shapes that wine bottles have been given over the years. In Europe, the practice of bottling wine from a specific geographical region in a characteristically shaped container provided the impetus for the development of different bottle forms. An American interpretation of this tradition was adopted by the California winemakers and continues to this day. While the Golden State is obviously not the region of Bordeaux, Burgundy, or Rhine, it is possible to conjure up images of these famous districts by bottling the types of wine for which they are famous in similar easily recognizable, distinctive containers. For example, Cabernet Sauvignon, the grape for which the Bordeaux region of France is renowned, is grown and made into wine in California, and the long-lived, elegant wine is bottled in a container identical to that used in Europe. The bottle possesses a distinct shoulder to retain the sediment produced by the aging process and a neck that is straight and deep to accommodate the long corks used to preserve these slow-maturing wines (Lichine 1977:117). The overall shape of the bottle is suited for stacking so that the wine can be conveniently stored while it matures (Johnson 1978:52).

However, one cannot always assume that California winemakers employed bottle shapes that were invariably modeled on an existing European pattern. During the nineteenth century, California winemakers given to experimentation frequently produced odd vinous concoctions that are rarely, if ever, seen today, and these wines were likely to be bottled in any number of differing container types. Archival research at the Vintners' Club Library in San Francisco, for example, revealed an unusual antique wine bottle with the following information on its label: "Sauternes type carbonated wine, produced in Napa County, A. Reppold Co., San Francisco." By French tradition, the sweet white wine produced in Sauternes would be bottled in a Bordeaux-type container made of lightly tinted glass. (Sauternes is a district of Bordeaux.) Adhering to this tradition, California winemakers usually bottled their "sauternes" in identical vessels. The wine in question, however, had been packaged in a champagne-style bottle, and upon examina-

tion, the reason for the peculiar bottle shape became obvious: the beverage being sold was a sparkling wine which, despite the assertions on the label, bore a greater similarity to champagne than to sauternes. Hence, it was quite logical that such a beverage would be packaged in a champagne bottle. If this container had been found in an archaeological deposit without an explanatory label, however, one would naturally but erroneously assume that it had once held French or California champagne, or perhaps burgundy, not that it was the result of imaginative enological experimentation. The point of this example, then, is that while there does appear to be a tendency in California viticultural tradition for certain varieties of wine to be consistently bottled in characteristically shaped containers modeled on a European pattern, deviations from these trends invariable occurred, and the archaeological researcher must guard against facile generalization.

Five distinctive types of wine bottles were recovered from the N-5 dump site: Champagne, Burgundy, Bordeaux, Benedictine, and Rhine containers. The identifications below were verified by Ernest Mittelberger, director of the Christian Brothers Wine Museum of San Francisco. Illustrations of the bottle types discussed in this chapter can be found in Appendix B below.

Champagne

Champagne is a district in northern France that is famous for its twice-fermented sparkling juice of the Chardonnay and Pinot Noir grapes (Robards 1977:132). Under French law, only sparkling wines from this region are entitled to be labelled "Champagne". Ever since the procedure of capturing the effervescence produced by fermentation was perfected in the seventeenth century by a Benedictine monk named Dom Perignon (Lichine 1977:153), vintners have attempted to imitate the process with varying success.

The thick-walled, gracefully sloping container associated with the Champagne region of France is easily recognizable by the deeply inverted "kick-up" bottom. The overall shape of the bottle is reminiscent of an upside-down tulip, as seen in Appendix B below. The bottles are generally made of dark green tinted glass and possess a pronounced ring just below

the lip which serves as an anchor for the cork-retaining wire peculiar to the packaging of sparkling wines. It should be noted wire peculiar to the packaging of sparkling wines. It riety of bottle sizes ranging from the "split", which holds one quarter of the standard bottle contents, to the gigantic "Nebuchadnezzar" holding the equivalent of 20 bottles of wine (Lichine 1977:343).

In the early 1860s, California winemakers experimented with producing champagne. In 1862, Arpad Haraszthy, son of Agoston, returned from a two-year apprenticeship at France's Moët & Chandon champagne cellars and tried his hand at winemaking (Wait 1889:93). His first attempt was a miserable failure, largely because he used the Mission grape (Wait 1889:94). In 1864, the Sainsevain Brothers, who owned vineyards in Los Angeles and San Jose, made the same mistake of using the Mission grape. Even the skill of their imported French workmen could not compensate for the grape's poor quality (Wait 1889:29).

By 1867, Arpad Haraszthy had successfully blended California-grown Rieslings, Bergers, Gutedels, Muscatels, and Zinfandels (Nesfield 1883:5) "chosen for their color, lightness of body, saccharine properties, and alcoholic strength" (Haraszthy 1978:7). The resultant sparkling wines, labelled "Extra Dry Eclipse", "Grand Prix", "Silleny Mousseaux", and "Sparkling Sonoma" (Nesfield 1883:23; Carosso 1951:70), were found to be quite palatable and were well received throughout the world. Soon the demand for these wines outweighed the supply (Wait 1889:29). "Sparkling Sonoma", produced in bulk by the Buena Vista Viticultural Society, sold at \$12 to \$15 a case in 1869, or a few dollars less than imported champagne (see Figure 6.07). Receiving honorable mention at the 1867 Paris Universal Exposition, it was reputed to be equal to the second-rate champagnes of France (Carosso 1951:70). The "Eclipse" champagne also won world prizes in the 1870s and 1880s, being rated superior to many foreign brands while being substantially cheaper than the French version (Wait 1889:94).

In spite of the ready availability of domestic champagne, Californians apparently did not drink much of their own sparkling wine. Although the wine was for sale at bars, clubs, and first-class hotels, very little was consumed by the local market (Wait 1889:28). The largest demand for the California product came from the East, with Boston, New York, and

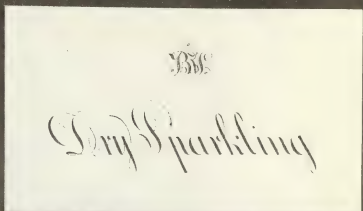


Figure 6.07: Nineteenth-Century Labels from Sonoma County's Buena Vista Winery. . .During the closing decades of the 1800s, the dry, sparkling white wines produced at Buena Vista began to acquire a favorable international reputation for quality and palatability. Also seen in this illustration are examples of other types of wine produced at this pioneering Northern California winery. (San Francisco Wine Institute)

Figure 6.06: A Typical California Wine Store of the 1880s. . .During the nineteenth century, the majority of native wines were sold in bulk directly out of the barrel. The purchase of bottled California wines was, for the most part, a practice reserved for wealthy customers. The packaged wines which can be seen in this merchant's glass display cases are almost certainly expensive, imported vintage selections. (The Christian Brothers Collection at the Wine Museum of San Francisco)



Philadelphia being the foremost customers. After the outbreak of the Franco-Prussian War in 1870, however, the supply of European champagne to the United States was cut off, and this event led to a greater call for California sparkling wine. Yet once the war was over, the market for French champagne rose again to resume its pre-war level (Carosso 1951:88).

Research for this study has indicated that until some years after the filling of the N-5 dump, Californians tended to prefer drinking imported champagne over the domestic form. On the basis of this evidence, it is likely that champagne bottles found in pre-1900 archaeological sites throughout California are likely to have contained French wine. This contention is bolstered by the single identifiable champagne artifact recovered from N-5--the top of a bottle complete with cork and seal (see Figure 6.08). The lead foil seal bears the name of Heidseck and its place of manufacture, Reims, France.

As for the occasional bottle of champagne in N-5 that may have been of local manufacture, identification is complicated by the fact that all sparkling wine containers were made in France, shipped to the United States, and filled with the California product until at least the late 1880s. Without label or cork, it is impossible to determine if a bottle molded in France once contained a bubbling wine from the district of Champagne in France or if it was filled at Arpad Haraszthy & Co., 530 Washington Street, San Francisco, California.

Burgundy

Research suggests that the containers used to bottle Burgundy wines in France's districts of Champagne and Burgundy are identical in form to those used in California (Mittelberger, personal communication). Unlike the variety of shapes found in the containers of Champagne, the largest Burgundy bottle is known as a "double magnum" which contains the same amount of wine as four standard sized bottles. As noted in Appendix B, the bottles of the burgundy-type recovered from the N-5 dump are of similar shape, but have been made from glass of varying thickness. Perhaps the bottles possessing the thin glass sides once contained Burgundian wines while those with thick glass sides were necessary to withstand the stress created by the sparkling wines during fermentation.

The Burgundy region in eastern France is famous for its elegant red and white wines (Lichine 1977:128). The red wines are made from the Pinot Noir and Gamay grapes (Lichine 1977:129; Robards 1977:64), the white wines from the Chardonnay grape (Johnson 1978:64). "Burgundy", however, has become one of the most misused names in viticulture, being indiscriminately applied throughout the world "to mean almost anything vaguely red and alcoholic" (Robards 1977:115).

This misuse of the term and the influence of the red Mission grape throughout California's winemaking history has made it difficult to study the production of the Burgundian type of wine in California. Santa Clara was said to have produced the best "burgundy" in California (Wait 1889:30), but this observation is in keeping with the northern counties' fame as a region that produced good "acid wines".

Bordeaux

The Bordeaux region of southwestern France is the most important wine producing district in that country. For 2000 years, vines have been grown in the pebbly soil to produce some of the world's finest wines. The red wines must be made from varieties of the Cabernet vines, including Cabernet Sauvignon, Cabernet Franc, Carménère, Merlot, Malbec, and Petit-Verdot. The white wines come from the Sémillon, Sauvignon, Muscadelle, and Merlot Blanc grapes (Lichine 1977:116). Red and white Bordeaux wines are bottled in containers of identical shape, but the white wines are bottled in clear or light colored glass, while the long-aged reds require dark green glass to protect them from direct light. Because only bottles of dark green glass were recovered from the N-5 dump, the white Bordeaux wines are not investigated further.

In the late 1880s, the Napa valley nurtured all of the red varieties except for the Carménère. Growing the same types of grapes as were cultivated at the grand chateaux of Lafite and Marguax, Napa winemakers had dreams of competing with the vintners of Bordeaux. In 1889, several hundred thousand gallons of blended native Cabernet wines aged in the cellars of Napa and Sonoma in response to the increased popularity of red wines (Carosso 1951:133; Wait 1889:103-104).

This had not always been the case in California. A palatable red

wine is a difficult wine to produce, and the problems that plagued the young industry were most obviously reflected in the heavy red wines. Lack of winemaking experience, lack of aging, adulteration, the poor quality of the popular Mission grape, and the California adoption of French place names (such as Bordeaux, Chablis, and Burgundy) brought locally produced red wine varieties to public disfavor. In the 1860s, as mentioned above, the California wine trade dealt largely in finer grades of white, sweet, and sparkling wines, ignoring the inferior red wines. In fact, wine drinkers of the day so disliked the California-made reds that they were more than willing to pay the price of imported wines. In 1861 alone, more than \$200,000 worth of European wines--most of them red--were imported into San Francisco (Carosso 1951:77).

Since fine-quality California red wines from the noblest grape varieties were not generally produced and released to the market until the 1890s, it can be assumed that the bottles of "Bordeaux" or "Claret" (the British term for the Cabernet Sauvignon wines) recovered from the N-5 dump were of European origin, an assumption supported by evidence found during the course of archaeological monitoring.

Among the more informative and eye-catching artifactual specimens recovered from the N-5 dump site are two fragmentary glass bottles with embossed seals bearing the name of Château Lafite-Rothschild. It was, and still sometimes is, the custom among famous French vineyards to emboss their names and/or registered trademarks upon the bottles containing their coveted product. Analysis of these artifacts, coupled with a judicious examination of pertinent documentary sources, makes it possible to piece together a good deal of information about the wines these bottles once contained and the history of the vineyard producing the drink, as well as some general insight into what kind of late nineteenth century San Franciscans would have been likely to have consumed such a beverage.

Château Lafite has long been heralded as the producer of some of the most prestigious and expensive red wines in the world. Located near the banks of the Gironde River on the Médoc Peninsula, perhaps the best known of the many celebrated wine growing districts of Bordeaux (Simon 1957; Johnson 1978; Penning-Rowsell 1969), the vineyard claims a recorded history that can be traced as far back as 1234 (Lichine 1977:283). Despite

the vicissitudes of history and periodic changes in ownership, the reputation of Chateau Lafite and its wine grew steadily, and by the beginning of the nineteenth century, the very name of the vineyard had become synonymous with quintessential excellence in red wine. Drunk by kings and presidents alike, the wines of Château Lafite, observed the ardent enophile Thomas Jefferson, were highly sought after in the United States as well as Europe (Ray 1977:25). In 1868, when the Château Lafite property became available at auction, Baron James de Rothschild purchased it, and the vineyard has been in the hands of his descendants ever since (Ray 1978:36).

Archival research suggests that one of the embossed glass seals at N-5 was part of a magnum containing the memorable vintage of 1870 (see Figure 6.09). This particular bottle of Château Lafite was packaged and distributed by the Bordeaux wine brokerage firm of Cruse et Fils Freres; a photograph of another magnum of 1870 Lafite bearing an identical seal can be seen in a recent catalogue of rare wines offered for sale by the Hueblein Corporation at their annual auction (1980:8). This same seal may have been embossed upon bottles containing other vintages of Cruse-bottled Château Lafite during the 1870s, but archival research failed to uncover any specific evidence to support such a possibility.

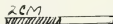
It has been more difficult to precisely identify the second embossed seal recovered from N-5 (see Figure 6.10). However, given the depositional history of the site (see Chapter 5), coupled with the fact that nineteenth-century red Bordeaux wine was not produced to be consumed in the blush of youth, it is likely that this seal was also part of a bottle of Château Lafite from a vintage no later than the early 1870s.

As a matter of incidental consideration, it is interesting to note that the 1870 vintage in Bordeaux (of which Château Lafite is an example of high quality) was one of the most powerful, tannic, slow-maturing wines of the second half of the nineteenth century. Wine lovers were generally enjoying their 1870s during the 1920s and 1930s (Waugh 1972:167), and the contents of the rare bottles which occasionally appear on the market today are said to be in remarkable condition (Draper and Esquin 1979-80:8). Hence, if the embossed seal recovered from N-5 did indeed belong to a magnum of 1870 Lafite, there can be no doubt that the wine was opened

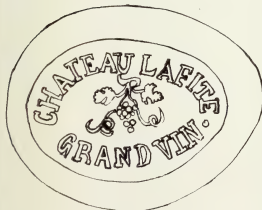
Figure 6.08: A Lead Seal from a Nineteenth-Century Bottle of French Champagne. . Of the numerous champagne bottles and fragments recovered at N-5, only this embossed cork cover could be positively associated with a specific wine manufacturer, the Heidseck Company of Reims, France. As this specimen suggests, imported champagnes were considerably more popular in California in the late 1800s than their native-grown counterparts. (Jane Dill)



N5 · N · 155



N5 · M · 138



N5 · EE · 142



Figures 6.09 and 6.10: Embossed Glass Seals from One of the World's Most Famous Vineyards. . Archaeological monitoring at N-5 yielded these seals which once adorned bottles of Chateau Lafite, perhaps the most celebrated red wine of Bordeaux. Archival research has shown that bottles so embossed can be dated to the 1870s. The recovery of these seals at N-5, items which almost certainly came from some of the city's most exclusive and affluent homes or restaurants, attests to the diversity of life in San Francisco during the 1880s. (Jane Dill)

and consumed decades prior to its appointed time and place--unless the bottle had been accidentally broken during its long voyage from France to California.

While the majority of the artifacts recovered from N-5 were apparently items used or enjoyed by workingclass people, the presence of the embossed Château Lafite seals indicates that refuse from well-to-do homes and restaurants also found its way into the North Point dump. Château Lafite was as relatively expensive then as it is now (in 1980, for example, a bottle of 1970 Lafite-Rothschild retails for approximately \$70), and it is unlikely that any but the city's wealthiest residents could have afforded to drink it. Perhaps the seals recovered from N-5 once decorated a bottle consumed by Adolf Sutro, who was known to have imported large quantities of wine to San Francisco for storage in his cellars overlooking the ocean (Stewart and Stewart 1962). Or perhaps the bottle graced the table of Leland Stanford or one of the other financial giants residing on Nob Hill. At any rate, the presence of these embossed seals suggests that the refuse recovered at N-5 came from a more diverse sector of the city's population than had been originally evident from a cursory inspection of the artifacts.

Benedictine

A liqueur consisting of 30 herbs, honey, sugar, and china tea in a base of brandy (Gold 1973:622), Benedictine was concocted by Dom Bernardo Vincelli at the Benedictine monastery in Fécamp, France, in 1510. Over the years, the carefully guarded formula for Benedictine has been assumed and produced by a secular concern that claims that no more than three people at any given time know the liqueur's exact make-up (Lichine 1977:106). This fact suggests that unless the bottle recovered from the N-5 dump contained an imitation of the liqueur, the squat, long-necked Benedictine container easily identified by its circular indentation for a wax seal was probably of French manufacture.

Brandy, however, was produced in California as early as 1840 by Jean Louis Vignes at his vineyard and winery, El Aliso (Carosso 1951:9). The distilled wine, made correctly from Challose and Folle Blanche grapes or the true Cognac grapes (Wait 1889:116) was an important part of the

state's wine industry by the 1860s. Until that time, the distillation of brandy was a largely neglected branch of viticulture (Carosso 1951:47). Throughout the late 1880s, the manufacture of brandy was hindered by a variety of federal taxes and laws, but the amber colored spirit survived the vicissitudes of history and is still produced in bulk in California today.

Rhine

The tall, narrow, brown glass bottle found at the N-5 dump site which possesses a flat bottom and gently sloping shoulders once contained a dry, white wine made from the Riesling grape. Commonly known as "Rhine" wine, the beverage originates in the German Rhineland (or Rheingau), an area where the Rhine River is at its widest (Lichine 1977:392).

Colonel Agoston Haraszthy introduced the Riesling grape to his vineyards in Sonoma in the late 1850s, and from his Buena Vista winery, the grape was distributed throughout the state (Carosso 1951:43). The vines, which produced their most satisfactory results in Northern California, were grown extensively in Santa Cruz, Sonoma, and Napa counties (Wait 1889:12; Carosso 1951:77). By 1886, the "Hock" wines (a British term for Rheingau wines, derived from Hochheim, the name of a town in the region) (Lichine 1977:257) were being made by San Francisco's Charles Kohler and sent to Germany and Denmark as well as a number of other European countries. Aided by aging on the long sea voyage, the wines were judged to be of equal caliber to the best German varieties (Carosso 1951:35). Since both German and California Rhine wines were of high quality and bottled in similar types of containers, it is extremely difficult to determine whether the Hock wine bottles recovered at N-5 were of domestic or European origin.

A COMMENT UPON THE ROLE OF THE CHINESE IN CALIFORNIA VITICULTURE

As discussed below in Chapter 9, a large number of the ceramic artifacts recovered from N-5 are identifiable as Chinese in origin. This makes it possible that a goodly portion of the European style artifacts recovered at the site belonged to San Francisco's Chinese. Given the history of secondary deposition at the site and the circumstances of data recovery discussed in the preceding chapter, there is probably no way of proving this assertion from a study of the artifacts which have been collected. However, the present chapter is an appropriate setting for a brief discussion of the role which the Chinese played in the development of the California wine industry during the nineteenth century.

As documented by William Heintz in **The Role of Chinese Labor in Viticulture and Wine Making in Nineteenth Century California**, the Chinese played a central role in California's wine trade from the 1870s through the turn of the century. Responsible for tasks that ranged from cleaning the wine barrels and casks to harvesting grapes and preparing the fields for planting, Chinese workers were also known to be fully in charge of blending the wines and overseeing winery production (1977:62-70). Figures 6.11, 6.12, and 6.13 depict some of these various activities.

As Heintz also notes, there is ample evidence in Chinese literature to substantiate the enjoyment of wine in China ever since the introduction of the vine to that country in the second century by the Arabs in Turkestan (Ibid.:70). Wine was a beverage that was enjoyed by the elite of ancient China, and during the T'ang Dynasty, when art and poetry flourished, wine was drunk by the courtiers, poets, artists, and mandarins (Lichine 1977:170).

The Chinese also imported wine to their country for many centuries. Long before the seventh century AD, they were carrying wine from the Mediterranean area and Persia along the same routes they used to export silks westward (Ibid.). California's wine industry profited from this taste for foreign wine after 1860 when the state began to export wine, and China became one of the first countries to consume the American-made product (Carosso 1951:78). By the early 1860s, Kohler and Frohling, the

largest wine distributing firm in the state, had established foreign agencies throughout the world with representatives in Hong Kong and Shanghai (Ibid.:32).

Certainly California's nineteenth-century Chinese community played a greater role in both the production and, probably, consumption of wine than is generally acknowledged. While one cannot establish with certainty that any of the wine contained in the bottles recovered at N-5 was consumed by Chinese, the possibility exists. It is interesting to note that a researcher excavating a Chinese privy in Ventura, California, also noted the presence of many wine and whiskey bottles (Benté 1975). In summary and as discussed below in Chapter 9, the evidence suggests that while California's nineteenth-century Chinese community may have preferred to use items of their own manufacture as much as possible, this cultural preference could not always be realized in a foreign country. Hence, this possibility must be borne in mind when discussing the origins and use of the collection of European style artifactual specimens such as wine bottles recovered from N-5 during the course of the Wastewater Management archaeological program.

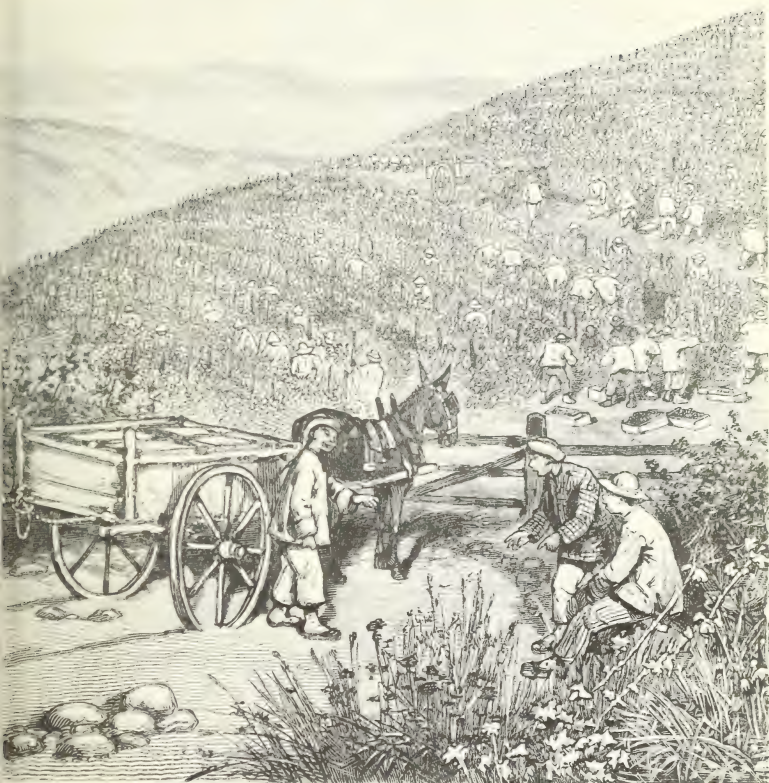
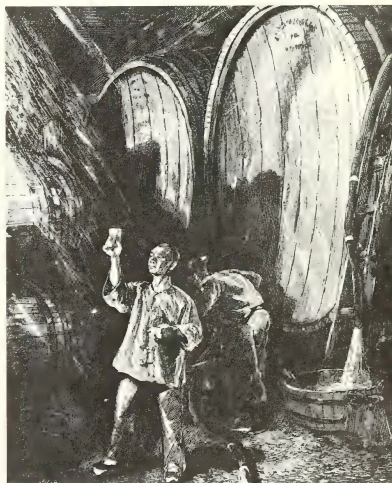


Figure 6.11: Chinese Laborers Harvesting Grapes at a Northern California Vineyard. .Immigrant Chinese laborers played a major role in California's wine industry during the last three decades of the nineteenth century. Here, a crew of Asian workers can be seen harvesting grapes in preparation for the crushing. (Frank Leslie's *Popular Monthly*, November, 1884, The Christian Brothers Collection at the Wine Museum of San Francisco)



Figure 6.12: "At Work at the Wine Presses". . .The Chinese participated in all phases of the California wine trade. Here, in the often reprinted drawing by Frenzeny, Chinese laborers can be seen at work transporting the grapes to the wine presses and crushing them by foot in the time-honored fashion. (The Christian Brothers Collection at the Wine Museum of San Francisco)

Figure 6.13: A Chinese Cellar Master. . .Not all of the Chinese associated with California's wine industry were employed as manual laborers. A number of individuals held positions of trust and importance as cellar masters in charge of blending the wines and overseeing winery production in general. This lithograph shows one such Asian cellar master at work. (Bancroft Library)



CONCLUDING OBSERVATIONS

The California winemaking industry has played a major role in the history of the Golden State, moving from a leisurely, aristocratic avocation to become one of the mainstays of California's economy by the end of the nineteenth century. The growth of San Francisco was greatly influenced and enhanced by the demands of the wine industry, and its geographical proximity to the wine producing areas of Northern California brought it a bountiful financial harvest. The winemakers' need for casks, bottles, distributors, and wine machinery encouraged the development of a variety of related industries; in addition, the active importing and exporting associated with the wine trade helped make San Francisco the principle port on the Pacific Coast (Carosso 1951:86).

From study of the historical documents, along with information gleaned from the wine bottles recovered from the N-5 dump, a number of insights have been gathered about the role which wine and the wine industry played in California during the 1880s. It has been shown, for example, that the balance between the consumption of imported and domestic wines in California was based upon a complex series of interdigitating factors such as production, the availability of bottles, the strength of the regional economy, and periodic natural disasters which alternately beset the vineyards of France and California. Fittingly, the N-5 wine bottles reflect the diversity of San Francisco's wine drinking populace of the day. For example, the Chinese, who played such a major role in the production of California's wines, also were important consumers of the beverage they so assiduously helped create. The presence at the site of bottles of Château Lafite, on the other hand, indicates that the refuse from the city's wealthier homes or restaurants somehow found its way into the N-5 dump. Since we know that most of California's wine was sold out of the barrel, it seems plausible to assume that many of the bottles found at N-5 contained either European wine or examples of California's finest vintages.

Given the documented importance of the wine industry in California's economy, it is not surprising that wine bottles are a commonly encountered artifact type in archaeological sites of the nineteenth century throughout the state. While it is rare to recover intact wine bottles that bear labels,

seals, corks, or other evidence of positive identification, research indicates that there exists a demonstration pattern of certain types of wine being consistently bottled in recognizably shaped containers. Furthermore, it is often possible to determine the origin of the bottles or bottle fragments recovered at an archaeological site as well as that of the wine once contained therein. Wine bottles recovered from archaeological sites, even those which superficially appear non-diagnostic, may have greater interpretive and explanatory value than had once been thought, and considerable benefit may be derived from further systematic study of these artifacts.

PANACEAS IN GLASS: DRUG BOTTLES AT N-5

Even with ten thousand unimpeachable proofs of the permanent cures of nervous diseases effected by Morse's Invigorating Elixir staring them in the face, professional bigots may be found who still contend that there is no exhilarant, no stimulant in nature, the curative action of which is not weakened by repetition.

Advertising brochure, Dr. Morse's
Invigorating Cordial

Medicine shows and quackery marked late nineteenth century medical culture to such a degree that one popular stereotype of the huckster is still a top-hatted fast talker working a crowd of rubes from the tailgate of his gaily painted wagon. The Wilsons' **Nineteenth Century Medicine in Glass** (1971) provides a light-hearted, yet well documented, look at this aspect of American medical history, while two more serious studies (Holbrook 1951; Young 1961) have examined the rise and fall of "patent" or more exactly, proprietary, medicines. More than 175 drug bottles (a generic term covering both proprietary brand medicines, such as Sanford's Radical Cure, as well as bottles bearing the names of local pharmacies which might be filled by the druggist with various prescriptions) formed a sizeable portion of the bottles recovered from N-5. This chapter takes a closer look at these drug bottles, placing them in both the wider contest of 1870s and 1880s pharmaceutical practices and in the more circumscribed sphere of San Francisco drug manufacturing and dispensing.

Importing, Manufacturing, and Distributing Drugs in San Francisco, 1870-1885

The completion of the transcontinental railroad in 1869 opened San Francisco to an influx of manufactured goods from the industrial centers of the

eastern and central United States. Two factors combined to make the city a prime destination for all sorts of products and wares, which arrived by sea as well as by rail. One was its relative industrial backwardness when compared with New York, Boston, or Philadelphia (see statistics in U.S. Department of the Interior 1888). The other was its importance as the major entrepôt for distribution of goods to interior California and the West generally (Figure 7.01). By the late 1870s, the city's favorable location on the Pacific Coast and the many ocean steamer and railroad lines converging on the port resulted in San Francisco being surpassed perhaps only by New York and London in the variety of drugs it imported. (For practical purposes, a drug maybe broadly defined as a substance used as a medicine or for making medicines for internal or external use. By this definition, a great variety of crude and refined materials of mineral, vegetable, and animal origin qualify as drugs.)

In the Bay City in 1878, imports of drugs from foreign countries amounted to a considerable \$292,000 at wholesale prices. Almost two-thirds of this volume came from Mexico, with China, Tahiti, and England the next three largest sources. Not included in this figure is the 66,000 pounds of Chinese opium imported for ethnic use at a value of \$682,000. In 1879, jobbers were selling principal drugs at the following prices: salicylic acid, \$3.75 per pound; alcohol, \$2.40 per gallon; wintergreen oil, \$3.50 per pound; Smyrna opium for medicinal use (via New York), \$5.50 per pound; cardamon seed, \$2.25 per pound; strychnine, \$1.70 per ounce; vanilla bean, \$10.00 per pound; sarsaparilla root, 15¢-45¢ per pound; and Vaseline, 90¢ per pound (Steele 1879: 562-566).

By 1880, Californians were manufacturing or converting bulk drug imports into consumer goods on many operating levels. Small shop laboratories were maintained in many retail drugstores throughout the state, and more elaborate facilities existed in several metropolitan wholesale houses. Two kinds of operations were devoted exclusively to the production of medicinal preparations: manufacturing chemists and the less professional but no less popular "patent" or proprietary medicine manufacturers. Some firms managed to be everything at once. For example, James G. Steele & Company at 635 Market Street in San Francisco's Palace Hotel were listed as retail druggists, wholesale druggists, chemists, dealers in California

medicinal plants (Langley 1880: 1005), and "Manufacturers and Sole Proprietors" of 11 different medicines, cosmetics, dentrifices, and a cleaning solvent (see Figure 7.02). Manufactured at all commercial levels by many firms were the profitable, secret-formula proprietary medicines which claimed through package labeling and newspaper advertising at their most innocuous to relieve sunburn and at their most exaggerated to cure every disease that plagued mankind.

Information gathered from the 1880 United States Census reveals that 15 of San Francisco's 3000 manufacturing establishments produced primarily proprietary medicines on capital investments totaling \$52,800. Some 31 employees over 15 years of age--workers who received \$16,732 in annual wages--converted \$71,820 worth of materials into products claiming a retail value of \$156,000. In comparison, the state of New York confessed to harboring 108 proprietary medicine firms, putting up \$4,340,000 of nostrums or cure-alls in 1880 (U.S. Department of Interior, Census Office 1885). Although most San Francisco-made goods naturally were distributed on the Pacific Coast, a survey of local newspaper advertising suggests that a substantial volume of proprietary medicines made east of the Missouri River was intended for sale in the West. This hypothesis is supported by the number of locally discarded containers identified with eastern producers. Distribution of these "foreign" goods was usually accomplished through West Coast drug wholesalers, but manufacturers would also sell directly to retailers or even to consumers. Occasionally, companies would install resident "manufacturer's agents" in metropolitan areas offering potentially sizable markets.

The size of the impact of the fledging San Francisco industry on the well-established market for imported drug products is suggested by an examination of a surviving inventory list of a Northern California drugstore. Of the 393 packages of proprietary medicines of all descriptions lining the shelves of Francis Martin Hilby's shop in Monterey, California, on June 21, 1883, 76 were manufactured on the West Coast, 19.4 percent of the market in unit sales (Hilby 1883). In the collection of drug bottles found in the Wastewater Management Program sampling, 41 examples of proprietary medicines from the period 1870-1885 were identifiable from their embossed

bottle markings. Of these, 8 were for preparations of western manufacture (7 bottles of Wakelee's Camelline, 1 of Hall's Sarsaparilla). This count represents a remarkably similar 19.5 percent of the total.

Wholesale Distribution of Drugs

The San Francisco City Directory of 1880 lists 13 firms as wholesale druggists. Of these, four were large establishments, all carrying well-assorted stocks of merchandise for distribution to different retail stores, which regularly depended on them for supplies. The city's wholesale drug district, along with wholesale drygoods and clothing, grew up on or just north of lower Market Street. The firm Crane & Brigham was located at 520-522 Market between Sutter and Post, Langley & Michaels at the northeast corner of Front and Pine (see Figure 7.03), Redington & Company at 529 Market, and Abrams & Carroll at the northwest corner of Front and Market (Langley 1880: 1005).

To the disappointment of many San Francisco drug merchants, the advantages gained in availability and variety of goods following completion of the transcontinental railroad also opened the way for competition from enterprising wholesale houses in the East. After 1869, California was quickly invaded by an army of commercial travellers or "drummers" who secured orders from customers of the irritated and disadvantaged local houses. Although this trend to purchase from eastern suppliers at wholesale prices eventually subsided, the impact of competitive prices did not, and ante-railroad price levels were not yet regained as late as 1880. Adding to the burden of local suppliers was the time consumed in getting supplies from distant sources and the relatively low turnover rate of many items contained in the stock of a full-line jobber.

Forced to invest more capital to carry on his business in the West, the jobber's profits were generally lower than those of his counterparts back East. Nevertheless, in 1878 alone the city conducted some \$5 million in trade in drugs, chemicals, dye stuffs, paints, oils, and like, supplying 900 firms in the states and territories of California, Oregon, Utah, Idaho,

Figure 7.01: P. J. Reilly's Wholesale Drug Business, Corner of Second and Mission, c. 1860. . . was emblazoned with a list of the sorts of drug items flowing into San Francisco. Huge quantities of drugs were "imported" from New York and Philadelphia, as well as from abroad. (California Historical Society)



Figure 7.02: James G. Steele, Entrepreneur and Druggist. . . traded in wholesale, retail, and proprietary drugs from his store in the Palace Hotel. Steele later provided a valuable account of pharmacy in San Francisco during the late 1850s (Steele 1909). (Ad appearing in *Proceedings of the California Pharmaceutical Association*, January, 1883, p. 105)

JAMES G. STEELE & CO.

Chemists and Druggists,

IMPORTERS OF AND DEALERS IN

Crude & Powdered Drugs, Chemicals,

FLUID AND SOLID EXTRACTS,

TRAVELER'S, LULLY'S, BREIDICH BROTHERS, AND PARKS, DAVIS & CO'S

Essential Oils, Pressed Herbs, Pharmaceutical Preparations, etc.

CALIFORNIA MEDICINAL PLANTS A SPECIALTY.

GRINDELIA, YERBA SANTA, CASCARA SAGRADA, and others of Medicinal Value and Reputation, supplied in small or large quantities.

AGENTS FOR THE SALE OF

DR. RICORD'S RESTORATIVE PILLS.

MANUFACTURED AND SOLD THROUGH THE

Steele's Dispensary, for Coughs, Croup, etc.

Steele's Cold & Sore of Throat, for the Fast and Slow.

Steele's Cough Mixture, for Colds, Coughs, etc.

Steele's Laxative Syrup, for the Fast and Slow.

Steele's Laxative Syrup, for the Fast and Slow.

Steele's Laxative, the ONLY Palatable Preparation of Castor Oil.

Steele's Laxative, for Cough, Croup, etc.

Steele's Laxative, for Cough, Croup, etc.

Steele's Laxative, for Cough, Croup, etc.

Steele's Laxative, for Cough, Croup, etc.

Steele's Laxative, for Cough, Croup, etc.

JAMES G. STEELE & CO'S PALACE DRUG STORE,

PALACE HOTEL,

635 MARKET STREET, SAN FRANCISCO.

LANGLEY & MICHAELS Wholesale Druggists,

WHOLESALE
DRUGGISTS
IMPORTERS
OF PURE
FRENCH
ENGLISH
GERMAN
AND
ASIATIC
DRUGS AND
CHEMICALS



ESSENTIAL OILS
PERFUMERY
TOILET ARTICLES
AND
COSMETICS
AND
TOILET ARTICLES
AND
COSMETICS
AND
TOILET ARTICLES
AND
COSMETICS

IMPORTERS OF

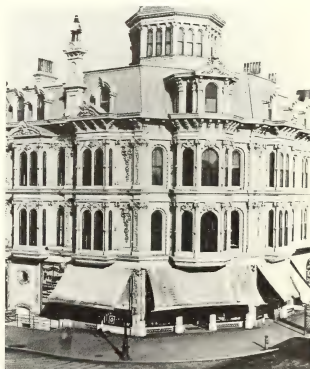
Drugs, Medicines, Chemicals, Dye Stuffs,

ETC.

NOS. 100 AND 102 FRONT STREET,
Corner of Pine,
SAN FRANCISCO.

Figure 7.03: Langley & Michaels' Wholesale Drug House. . . may have imported the Trommer's Extract of Malt found at N-5, as indicated by the advertisement found in the store's window. (Bancroft Library)

Figure 7.04: William Bryan's Pharmacy at Market and New Montgomery. . . was only one of four stores he operated in 1880. Some 109 retail druggists serviced San Francisco at the time the behind-the-seawall filling took place at N-5. (San Francisco Public Library)



Montana, Arizona, and Washington. Distribution was heavily implemented by the Pacific steam fleet--31 vessels comprising the British Columbia, Oregon, and Coast lines and 135 smaller vessels navigating San Francisco Bay (Steele 1879: 562-564, 647).

Retail Distribution of Drugs

The San Francisco **Directory** for 1880 lists 109 retail druggists who serviced every corner of the city. Seven of those listed maintained more than one store, William J. Bryan having four (Figure 7.04), Emlen Painter (Figure 7.05) having three, and Abramson & Bacon, Coffin & Mayhew, Alfred Gros, Lefevre & Kahn, and W. H. McLaughlin having two shops. The number of drugstores in San Francisco in 1880 thus totaled 119. Between 1870 and 1880, the increase in numbers of drugstore units was 32.2 percent, while the increase in number of wholesale firms was a comparable 30.0 percent. The population increase in San Francisco in the same period, however, almost doubled by jumping 58.6 percent (Langley 1870: 675-676, 696; 1880: 1005; U.S. Department of Interior, Census Office 1885). Thus, either individual drugstore units became more efficient by 1880, fewer stores survived under the strong price competition, or per-capita demand for retail drugstore commodities diminished over the ten-year period.

The annual sales of some of the larger retail drugstores in San Francisco in the 1870s and 1880s were close to \$100,000, and many could stock a fashionable lady's boudoir as well as a sickroom. Elegant store furnishings included splendid, and costly, plate-glass windows, marble-topped counters, well-filled showcases, and mirrors on every wall, creating interiors that matched their urban cousins in the East (see Figure 7.06). As in the eastern cities, however, the long hours and price cutting practiced by keen and too often unworthy competition threatened even the giants in the trade (Steele 1879: 564).

Through the efforts of the California Pharmaceutical Society, formed in 1869, the first state legislation related to drugs went into effect in 1872 with the purpose of regulating "the practice of pharmacy in the City and County of San Francisco." The new law restricted the sale of poisons such as arsenic, mercury, potassium cyanide, strychnine, opium, belladonna,

and digitalis; set up four classes of registration for pharmacists based on education, experience, and examination; and established the first Board of Pharmacy in California. Although the regulations pertained only to the City of San Francisco, they were passed as a state statute, preceding the first state pharmacy law by 20 years. After passage of the law, it became unlawful for any person to open or conduct any store for retailing, dispensing, or compounding medicines or poisons unless registered with and approved by the Board of Pharmacy. (A grandfather clause, however, allowed the automatic registration of existing druggists and apothecaries in San Francisco (Statutes of California, 19th Session, 1872, p. 681). The significance of this pioneer law to the profession of pharmacy in San Francisco and to the residents of the city was vividly outlined ten years later by Professor William M. Searby of the California College of Pharmacy in his address to the graduating class:

With the solitary exception of this one city--San Francisco--any man can carry on the business of an apothecary in any place on this coast from Fort Yuma to the North Pole, without knowing the first thing about his calling, and he will violate no law of the land. So far as the law is concerned, he need not know the difference between Jalap and Ipecac, between Senna and Buchu, or between Aconite and Dandelion; he need not know that his Calomel is contaminated with Corrosive Sublimate, his Quinine adulterated with Cinchonine, or his tinctures weakened with water. No officer of the law will call him to account for his ignorance, if he only takes sufficient care that any harm that may result shall not be traced to his shortcomings (Searby 1883:63).

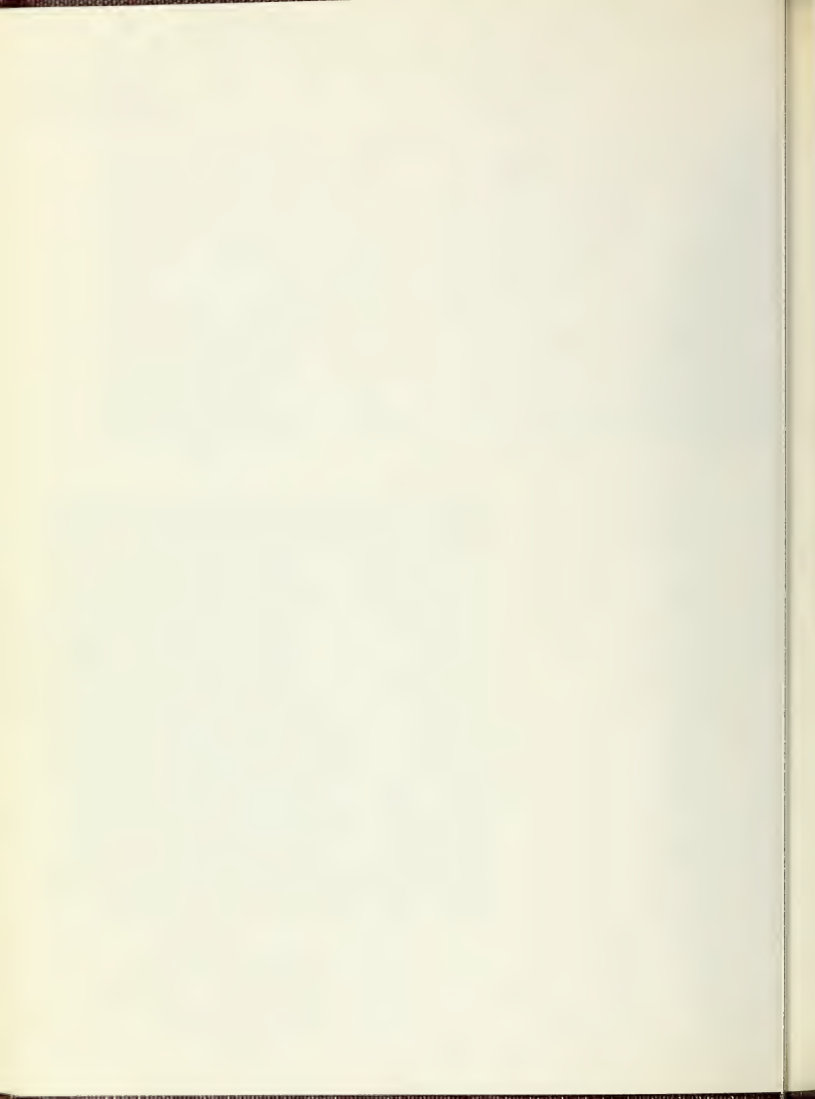
In the nineteenth century, retail pharmacy was a very demanding profession. Graduates of the class of 1882, for example, not only had to be adept in the art of preparing and compounding prescriptions and remedies, but had to deal at length with people who were regular patrons. Some customers brought physicians' prescriptions and other medical requests, but many also needed professional information, suggestions, and advice regarding "over-the-counter" preparations, materials, and equipment for home care of the sick and non-health related items such as cosmetics and other fancy goods and sundries stocked and displayed in the shop (see Figure 7.07). As well, druggists needed to remember the location of thousands of articles, their official as well as common names and uses, and their current prices. They were also expected to be knowledgeable



Figure 7.07: Pharmacies Routinely Used a Wide Range of Glassware. . . Wooden shelves (upper left) in Bergmann's Pharmacy, Watertown, Wisconsin, hold matched sets of "salt mouth" tincture bottles, while most other stock is packaged in different sorts of glass, as well. Though distinctly less elegant than Slaven's Pharmacy in San Francisco, the Bergmann Brothers establishment still carried luxury toiletries and perfumes for the ladies of the town. (University of California Medical Center Library)



Figure 7.06: Crystal and Cut Glass Graced the Interior of Slaven's Pharmacy. . . in the opulent Baldwin Hotel on Market Street. Then, as now, toiletries and perfumes formed a large part of the stock of many prosperous pharmacies. (Bancroft Library)





New Philadelphia Oval.

Millville Round.

Tall French Square.

Tall French Square,
Wide Mouth.

Blake.

MOULDS FOR INSERTION OF LETTERED PLATES.

The Charge is for Engraving Lettering on our Plates, and it will be made on the first order only.

We have the following sets of moulds prepared for the insertion of names without the expense of making a new mould for each new name to be inserted. Special pencil designs, with devices, monograms, &c., will be sent for selection or approval without charge.

We can make a rectangular, oval or gothic Panel, on the lettered side of the French Square, or on the flat side of the Philadelphia Oval and Millville Round. (See page 13.) The effect of the Panel is to reduce the content to very nearly the name. Thus, we make the 4 ounce French Square Prescription to hold say 4 1/2 ounces to the bottom of the neck, but with one side a panel it would hold only 4 ounces.

PHILADELPHIA OVALS.

MILLVILLE ROUND.

FRENCH SQUARES.

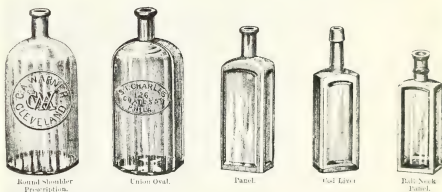
FRENCH SQUARES, WIDE MOUTH.

BLAKES AND TALL ENGLISH BLAKES.

. THE SAME PLATES FIT INTO EACH OF THE FIRST FOUR ABOVE STYLES OF MOULDS, and Ware from the same engraved plate can be ordered of either of these shapes of bottles.

PRICE ONE DOLLAR AND FIFTY CENTS TO SIX DOLLARS EACH FOR ENGRAVING.

Figure 7.08: Whitall, Tatum & Company's Catalog, 1880. . .provides illustrations and trade names for numerous common bottle types, including many of the drug bottles recovered from N-5. "Blakes" and "Philadelphia Ovals" in slightly modified form are still used to hold a variety of products. (Frank Sternad. Unless otherwise identified, all photographs in this Chapter are courtesy Frank Sternad.)

Round Shoulder
Prescription.

Union Oval.

Panel.

Tall French
Square.Tall Neck
Panel.

Figure 7.05: Prescription Bottle From Emlen Painter's Pharmacy. . .bears the embossed lettering and stylized initials common to drug bottles of the 1870s and '80s. (Frank Sternad)





in the storage requirements of the many drugs and chemicals in their care in order to minimize deterioration and contamination and to know which bottle, jar, collapsible metal tube, or paper, wooden, or tin box was appropriate for dispensing the requested product.

MANUFACTURING GLASS CONTAINERS FOR COMMERCIALLY DISTRIBUTED DRUGS

With the industrialization of the United States in the second and third quarters of the nineteenth century came significant technological improvements in the design and manufacture of utility bottles. In 1857, a catalog of a Philadelphia wholesale druggist offered a line of regular, octagonal, and paneled oval bottles characteristically shaped for drug packaging and requiring hinged iron molds for their formation (Dallam, Baker & Co. 1857). A 1862 price list for the Whitney Glass Works of Glassboro, New Jersey, itemizes a growing selection of "Druggist Glassware" including common vials, round and fluted prescription bottles, castor oil bottles (concave, octagon, oval, fluted), and cod liver oil bottles (Van Rensselaer 1926:136).

In San Francisco, the manufacture of commercial bottles was attempted with poor success as early as 1859. By mid-1863, the Pacific Glass Works was blowing common black and green glass at the Potrero, corner of Iowa and Mariposa streets, specializing in beverage and food bottles. In March 1865, an experienced glassman from Pittsburgh, Carlton Newman, organized the city's second glass factory on the south side of Townsend Street near Third. Newman and his partner, Patrick Brannan, called their establishment the San Francisco Glass Works, and they introduced druggists' and chemists' ware in colorless or so-called "flint" glass to the Pacific Coast. Although the flint glass was not always perfectly colorless, its clarity compared to non-decolorized shades, which ranged from deep aquamarine to almost black, made it suitable for prescription and other druggists' ware. By 1867, the new works employed about 40 men and boys, making "prescription bottles from one-half drachm to sixteen ounces; also oval, panel, and fluted prescriptions; extracts oil bottles. . .etc." (Newman 1867:211).

Eliminating his competition, Newman and his corporate partners purchased the pioneer Pacific Glass Works outright in 1876. The name lived on, however, in the firm's consolidated title, San Francisco and Pacific Glass Works. Housed in several buildings on the block bounded by Townsend, King, Third, and Fourth streets, the company expanded further in 1881 when a new furnace was completed on the compound for the manufacture

of bottles and similar green glass. At this point the company's two green glass furnaces were turning out 14 tons of "metal" (molten glass) a day, which brought employment to about 200 workers and created a product worth \$250,000 annually (Brothers 1952: 253-254).

Embossed Markings on Drug Bottles

Throughout the nineteenth century, raised or embossed wording, trademarks, monograms, and other marks and symbols were frequently produced on the surface of bottles blown in molds by incising the inner walls of the molds with the marks in reverse. These markings provide valuable data for determining the age of a bottle as well as the historical background of its user and manufacturer. Production of bottles with embossing on vertical surfaces required the use of metal molds composed of two or more pieces that swung open after the bottle was blown. Embossing confined to the base could be achieved in a one-piece mold that rose no higher than the widest point on the shoulder and tapered slightly toward the base, but this form of embossed bottle was never commonly used to hold drugs. The full-size or entire-bottle mold of two or more pieces, long used in England for some embossed vials, was adopted for embossed medicine bottles by American glassworks not long after 1800 (McKearin and Wilson 1978:288). Perhaps the earliest example in this country is the small bottle ordered about 1809 by Thomas W. Dyott of Philadelphia with the embossing, "Dr. Robertson's Family Medicines Prepared Only by T. W. Dyott". According to his advertising, the bottle was "American manufactured" (Ibid.:293).

Mold makers could customize the size and shape of a bottle as well as the embossing for their customers, and prices for this work varied according to the amount of time and effort expended. The 1875 catalog of William McCully & Co. of Pittsburgh, Pennsylvania, advertised, "Iron Moulds for every description of Green and Black Bottles can be furnished at an expense of from 10 to 25 dollars, and for Flint Glass Vials and Bottles from 20 to 50 dollars" (Innes 1976:229). In San Francisco in the early 1870s, Carlton Newman's San Francisco Glass Works was blowing medicine bottles in green glass, with particular attention to individually

lettered molds produced at a cost ranging from \$10 to \$30 apiece (Brothers 1952:254).

The production of embossed bottles was revolutionized with the invention of the lettered plate mold (United States Patent No. 72368) by James J. Christie of Baltimore, Maryland in 1867. Detachable cast iron plates were incised and then inserted into a standard mold having an opening to accommodate the plate in the desired position. The quality of bottle embossing improved because the small, flat plates of iron were more easily engraved than the concave interiors of the heavy mold pieces. Even more revolutionary was the cost to the customer, because personalized prescription were now came within the financial reach of small retail druggists. By 1880, a druggists' glassware producer employing lettered plates, Whitall, Tatum & Co. of South Millville, New Jersey, was charging between \$1.50 and \$6.00 for one engraved plate. As an added feature, one plate could fit the molds of four different styles of prescription bottles of the same capacity (see Figure 7.08).

Classification of Commercial Drug Bottles

With the development of glass packaging, certain basic shapes, sizes, and colors of bottles became associated with drugs of particular functions. Based on these morphological characteristics, drug bottles can be systematically classified according to function and, in some cases, approximate period of use.

Most of the drug bottle forms found in the N-5 collection coincide with descriptions and line drawings of bottles appearing in druggists' glassware catalogs of the latter nineteenth century. The catalog published by Whitall, Tatum & Co. of Philadelphia and New York City in 1880 will be used as a reference in the discussion below (see Figure 7.08) because (1) embossed markings on several of the bottles indicate manufacture by Whitall, Tatum & Co. around the year 1880; (2) the firm was one of the largest suppliers of druggists' glassware on both coasts during this period; and (3) its variety of forms was extensive and nomenclature close to being standard throughout the industry. Descriptive terms used below for bottle morphology are those adopted by White (1978), except for the lip finishes which are detailed in Figure 7.09.



Prescription Lip.



Extract Lip



Packer Lip.



Flare Mouth.



Oil Finish.



Double Ring.



Bead Finish.



Brandy Finish.

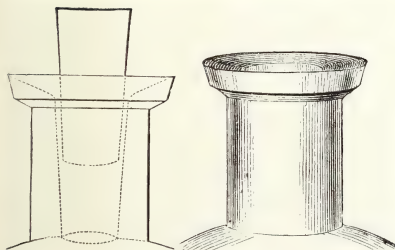


Figure 7.09: Late Nineteenth Century Lip Finishes. . .were of several basic types, as illustrated in an Illinois Glass Company catalog (Putnam 1965). All finishes are represented on various bottles from N-5, with the prescription, extract, and bead-finish lips most common on drug bottles.

“Prescription Lip” means a flaring mouth, with thin edge, suitable for drooping.



Prescription Bottles: Types and Terms

In the mid-nineteenth century, glass manufacturers began to further refine their "apothecary vials" or "vials" with the term "prescription". As the name implies, this category of ware was intended for the dispensing of physicians' prescriptions by retail druggists or by the physicians themselves in rural areas. In 1862, the Whitney Glass Works of Glassboro, New Jersey, itemized "Round Prescriptions" and "Fluted Prescriptions long & short" in their price list, one of the earliest associations of the designation "prescription" with the geometric shape of the bottles (Van Rensselaer 1926:136).

Many druggists also expediently used this style of container to repackage orders of processed crude drugs, extracts, and chemicals purchased in bulk for resale in smaller quantities. Drugs frequently used for prescription compounding and over-the-counter sale in San Francisco in 1878 included citric acid, grain alcohol, copaiba balsam, cassia buds, chloral hydrate, cream of tartar, glycerin, acacia gum, potassium iodide, iodine crystals, morphine, anise and wintergreen oils, crude opium, ipecac and sarsaparilla roots, coriander and mustard seeds, flowers of sulfur, and vanilla beans (Steele 1879: 565). Prescription bottles were also utilized for preparations that druggists themselves compounded in large quantity and repackaged. These efforts ranged from "store label" proprietary medicines made according to secret formulas to, at the opposite extreme, official preparations such as Tincture of Digitalis and Mixture of Rhubarb and Soda that conformed to precise standards of strength, identity, and purity as set forth in the **Pharmacopoeia** of the United States, a compendium revised every 10 years by national convention since 1820.

In 1880, the capacities of prescription bottles ranged from one gram (1/8 fluid ounce) to one quart (32 fluid ounces), and available colors in order of preference were flint (colorless), green (light green or aquamarine), and blue. Amber, a popular reddish-brown color achieved by adding red iron-oxide to decolorized glass, was not yet offered in prescription ware (Whitall, Tatum & Co. 1880). Narrow-mouthed bottles generally held liquids, and wide-mouthed prescription bottles were selected for bulk powders, pills, tablets and lozenges, capsules, and viscous liquids such as emulsions and suspensions.

Round prescriptions are circular in horizontal section and domed or semi-circular in vertical section at the shoulder. They are blown in two-piece and three-piece molds and occur with either narrow (see Figure 7.10) or wide mouth. Three-piece or "cylinder" molds are constructed with a one-piece cup-shaped portion to form the body of the bottle and two vertically split upper pieces to form the shoulder and neck. The cup-shaped portion is tapered slightly toward the base so that the blown bottle can be easily extracted from the mold. Mold seam lines on the surface of the blown bottle indicate the arrangement of the mold pieces. Some round prescription bottles have an unusually wide mouth that reduces the shoulder but suits them for fluffy powdered drugs such as quinine. Round prescriptions with a tall profile and higher or more acutely angular shoulder are called Boston Style. Whitall, Tatum & Co. elaborated on the basic round bottle with its development of the Millville Round (see Figure 7.11). The body of this bottle yields a truncated circle in horizontal section, caused by a 25 percent flattening of one-half of the cylinder. The vertical plane thus produced is normally occupied by personalized embossing, and, according to the touts of its inventor, "This style has the recommendation of entire novelty, a flat lettered side adapted to packing, and of a base not easily overturned." The design patent for the Millville Round was registered January 22, 1878 (Whitall, Tatum & Co. 1880; 12, 14).

Fluted prescriptions, 12-sided regular polygons in horizontal section with angular shoulders, are blown in two-piece molds with both narrow and wide mouths (see Figure 7.12). A carry-over from an early nineteenth century form of apothecary vial, the fluted prescription normally appears in green glass. The appellation "fluted" is actually a misnomer. Unless the bottle greatly collapses just after being blown, the several sides or facets are planar, not channelled or furrowed on a true fluted form. Interestingly, pharmacists were warned of the inherent weakness of this bottle in a report on pharmaceutical glassware: "Fluted...bottles are particularly objectionable, in wanting strength, there being so many angles liable to be broken through" (Wiegand 1869: 357).

Oval prescriptions are oval in horizontal section, with a domed shoulder. All oval prescriptions are narrow mouthed, with three major varieties: plain high oval, union oval, and Philadelphia oval. The first is

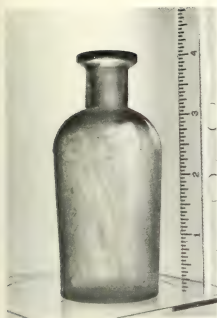


Figure 7.10:
Round Prescription Type

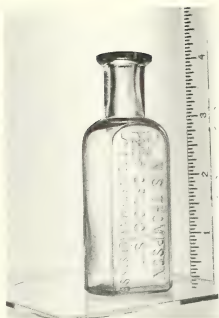


Figure 7.11:
Millville Round Type

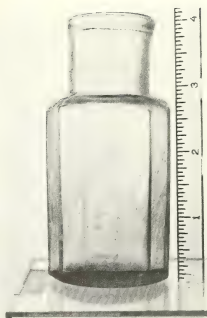


Figure 7.12:
Fluted Prescription Type

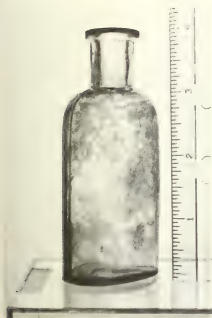


Figure 7.13:
Oval Prescription Type

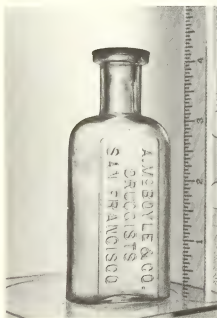


Figure 7.14:
Philadelphia Oval Type

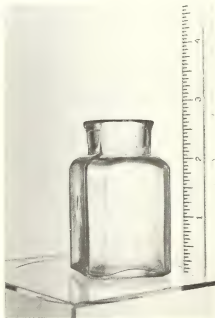


Figure 7.15:
French Square Prescription Type,
simple folded lip





Figure 7.16:
French Square Prescription Type,
narrow mouth, with popular
elaborate initials

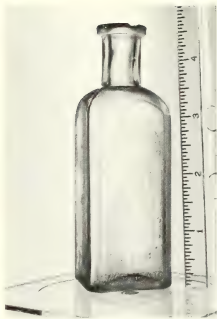


Figure 7.17:
French Square Prescription Type,
wide mouth

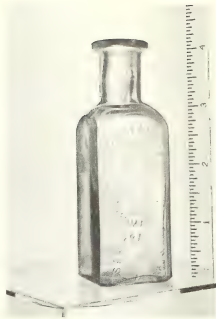


Figure 7.18:
French Square Prescription Type,
narrow mouth, with popular
elaborate initials

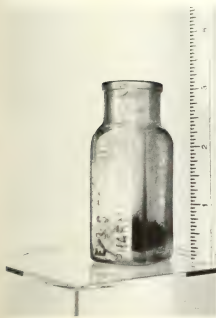


Figure 7.19:
Early French Square, produced
before 1863 for the "French
pharmacy" of E. & S. Fougere

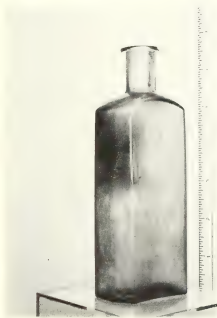


Figure 7.20:
Blake Type, perhaps English in
origin

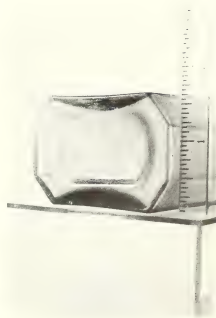


Figure 7.21:
Blake Type, perhaps English in
origin



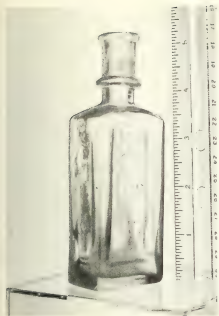


Figure 7.22:
Bail-Neck Panel Type

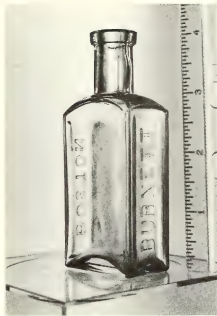


Figure 7.23:
Panel Type, bears name of
Burnetta, distributor of flavoring
extracts

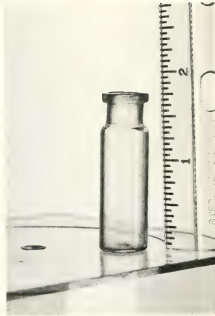


Figure 7.24:
Homeopathic Vial, holding tiny
doses prescribed by homeopathic
physicians



Figure 7.25:
Small French Square Type, from
Clapp's Homoeopharmacy in
Boston



Figure 7.26:
Citrate Bottle, with common
double ring finish

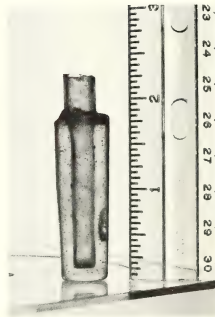


Figure 7.27:
Chinese Medicine Vial, or "opium
vial", distinctive in appearance
and manufacture



the basic oval configuration (see Figure 7.13). Union ovals possess added vertical medial ribs or "strap sides" on the opposing narrower sides of the bottle. Inspiration for this design and name is presumed to have originated with the popular post-Civil War "Union and Clasped Hands" liquor flasks (Innes 1976: 218). Philadelphia ovals, no doubt first blown in that city, offer an oval bottle with one of the wide faces flattened slightly to form a broad plane surface (see Figure 7.14). This form was promoted as having "no sharp corners, which are apt to break and collect deposits. It can be carried conveniently in the pocket, and will take a large label, which can be read without turning the bottle" (Whitall, Tatum & Co. 1880: 12).

French square prescriptions are square in horizontal section, with corners beveled at 45-degree angles to yield an irregular octagon. Shoulders are angular except at the corners where they are more rounded. French squares are elongated or "tall" in stature and were usually manufactured in flint glass with both wide (Figure 7.15) and narrow (Figure 7.16, 7.18) mouths. The form, which gained popularity in the United States in the 1860s, was possibly patterned after the perfume bottle of the same shape and name. A relatively crude example of the style dating no later than 1863 was found in the N-5 collection (Figure 7.19), embossed for use by two New York pharmacists of French extraction who operated a "French Pharmacy". A contemporary report on pharmaceutical glassware observed, "For prescriptions the style of vials known as 'French Squares' answers a most useful purpose, combining both elegance of shape and strength. They are to be preferred to round vials for the facility and economy of space with which they can be packed together" (Wiegand 1869:357). Beside minimizing breakage, the beveled-corner design claimed an additional benefit: "The champered (sic) edges make an octagon with angles, which reflects the light and displays the contents to great advantage" (Whitall, Tatum & Co. 1880: 13, 21).

Blakes are rectangular in horizontal section with beveled corners, similar to the French square. The shoulder is slightly domed in vertical section. Standing at least twice as high as its greatest width, the type gives a tall profile. Another term for the blake is "oblong", and the 1862 Whitney Glass Works' price list features "oblong squares" under the druggists' glassware listing (Van Rensselaer 1926:136). The bottle may be English in

origin, because somewhat taller variants are referred to as English or tall blakes. In 1880, the form was offered by Whitall, Tatum & Co. in flint and green glass only, but blakes in shades of light blue (Figures 7.20 and 7.21) have been associated with products manufactured and bottled in England (Whitall, Tatum & Co. 1880: 13, 47). Curiously, a blue blake used by San Francisco druggist William J. Bryan is present in the N-5 collection.

Panels are rectangular in horizontal section, tall in profile, and only rarely seen with wide mouths. Shallow recessed areas covering most of the vertical aspect of one or more sides of the form give the bottle its name "panel". The recessed areas are usually congruent with the outline of the side upon which they reside, i.e., they are basically rectangular with upper side arched or domed in conformance with the shoulder, but occasionally the areas are oval or some other geometric shape. The panel style was in common use at least by 1862 when Whitney Glass Works included them in its price list (Van Rensselaer 1926:136). Panels were manufactured in flint as well as green glass and ranged in capacity from 1/2 to 24 fluid ounces. Molds were constructed to produce recessed panel areas on all four sides of the bottle in most cases, but a "plain" panel bottle could be ordered with one broad side flat or plain. Panel bottles possessing a molded bead or ring encircling the neck about one-third the distance from the shoulder to the lip are called bulb or ball-neck panels (Figure 7.22) (Whitall, Tatum & Co. 1880: 7, 16, 46). The function of the convex bead was probably decorative, and its introduction is marked by inclusion of the statement, "Ball neck panel bottles in flint glass," in the 1866 catalog of glass manufacturers A. and D.H. Chambers of Pittsburgh, Pennsylvania. Bottles with recessed panels on the two narrow sides and plain broad sides are called flavoring extracts (Ibid.:16), exemplified by the ubiquitous Burnett Boston extract bottles in flint (Figure 7.23).

Because protrusion of the recessed panels into the interior of the bottle greatly reduces a bottle's volume, the net contents of a panel bottle is less than suggested by its external profile. Obviously, bottlemakers intended to present a bottle with broad profile that would take a large label and occupy maximum frontage on a store shelf, yet provide the buyer with a deceptively small amount of liquid. The tortuous nature of the interiors of panel bottles made them suitable only for liquids, and wide-

mouth examples are thus rarely encountered. Although the panel was a general utility bottle for commercial products of all kind and its use was not limited to drugs, surviving specimens with original labels and contents illustrate their extensive use by druggists for proprietary medicines (White 1974: 22, 32, 72). The promotion of dozens of varieties of panel bottles in druggists' glassware catalogs confirms their popularity in the drug trade.

Homeopathic Vials

Following the invention of the system of therapeutics known as homeopathy (from the Greek homoion-, or similar), by the Swiss-German physician and alchemist Paracelsus in the sixteenth century, the practice was revived by Dr. C. F. Samuel Hahnemann in the late eighteenth century. Based on the tenet that the cure of disease can be effected by drugs which will produce in healthy people symptoms similar to those of the disease to be treated, homeopathic practice employs the use of very minute doses of drugs on the theory that extreme dilution of a drug yields a remedy of greater powers of cure and abolishes undesirable side effects of the crude or full strength extract (Matthews 1962:105).

According to the **San Francisco Directory** for 1880, the city then boasted 19 homeopathic physicians and two homeopathic druggists (Langley 1880: 1005, 1055-1057). The druggists dispensing special homeopathic medications would need only relatively small containers to accommodate most courses of therapy because of homeopathy's minute dose requirements. For many solutions and small pills, or globules as they were called, glass vials holding 1/8 dram to 8 drams sufficed. The Whitall, Tatum & Co. catalog for 1880 contains illustrations of a "new style" of homeopathic vial, possessing "extra weight, round mouths, heavy lips, 'Patent Tool' finish, and annealed." (The patent tool finish refers to a continuous neck and lip formed with a specially patented tool yielding mouths of uniform diameter.) The two examples of homeopathic vials in the collection represent the "new style" (see Figure 7.24) as well as the form that probably just preceded it. The vials were normally made from white glass, but amber and blue color glass was also available.

In addition to rating by capacity, homeopathic vials could also be ordered by several body length and diameter combinations (expressed in millimeters) (Whitall, Tatum & Co. 1880:31). Since the body diameters listed in Whitall's ordering chart coincide with many of the glass tubing diameters offered in the same catalog (Ibid.:41), and since the wall thicknesses of the vials are remarkably uniform, they were likely fashioned from these tubings rather than individually blown. No mold seams appear on their surface.

Another form of glass container used by homeopathic druggists was a bottle of square horizontal section and relatively small capacity. Whitall, Tatum & Co. offered french squares in one, two, three, and four-dram sizes, and all could be blown with or without embossing (Ibid.: 8). A small Clapp's Homoeo Pharmacy bottle from Boston (Figure 7.25) found in the collection holds three drams, and the lettered plate was arranged so that the embossed wording appears in a recessed panel.

Citrate of Magnesia Bottles

Although basically round prescription bottles, these heavy cylinders have greater wall thickness, usual capacity close to 12 ounces, and heavy double-ring lips (Figure 7.26). They were blown in flint and green glass (Ibid.: 18, 48). Citrate of magnesia or magnesium citrate solution is a colorless, effervescent liquid that tastes like lemonade. Containing about 1.5 percent magnesium citrate, it is a mild, pleasant-to-take saline cathartic still sold in modern drugstores. Normally the entire contents of a bottle, or 12 fluid ounces for adults, is taken for a full purge. The official preparation first appearing in the **U.S. Pharmacopoeia** of 1850 was based on a formula proposed by M. Rogé Delabarre of Paris. An unusual feature of this formula is that the final mixture of the ingredients takes place in each individual bottle just before sealing with a cork and securing it with twine or wire. The sealed bottle is then shaken, and citric acid and potassium bicarbonate interact to form the carbon dioxide effervescence (Wood and Bache 1883:881-882). In the nineteenth century, this compounding usually took place within the local retail drugstore, and the charged nature of this liquid accounts for the sturdy bottle construction with a lip finish suitable for tying down cork closures.

Chinese Medicine Containers

These relatively small, aquamarine glass vials are of two basic kinds of construction. The smaller form appears to have been fabricated by dipping glass tubing into molten glass, thus forming a gather around the tube. The gather of hot, pliable glass was then paddled or shaped on a marver (slab of marble, metal, or wood) to give a body of rectangular section. The sharp, irregular edge of the lip indicates that the glass tubing was broken off with little precision to give a neck length of approximately 25 percent of the total height of the bottle (Figure 7.27). Rough grinding on the lip surface of two of the three specimens provided a less hazardous finish. The softening of the glass tube while exposed to the hot gather, along with the forceful actions of shaping, caused the tube within the body to collapse partially and distort from a circular to an oval section of reduced radius. The capacity of this bottle is therefore quite low in comparison to its external dimensions. One such container was described as being filled with "little red headache pills that looked like radish seeds" (Ferraro 1966: 75-76). Many of these medicine bottles were probably purchased from one of Chinatown's dealers in drugs and medicines (see Figure 7.28) who officially numbered 27 in 1877 (Bishop 1877:1427).

The larger form of Chinese medicine vial found at N-5 was partially constructed from similar glass tubing, but the tubing may also have served as the blowpipe. A gather of molten glass was formed on the end of a length of tubing and then inflated within a one-piece mold that formed the shape of the body up to shoulder height. The "dip mold", as it is called, created a body of irregular octagonal section with no mold line. The glass tubing blowpipe was then broken off at the appropriate point to form a neck and lip as described above. (This style of bottle is pictured by Ferraro in a display of Chinese artifacts (Ibid.:75).)

Proprietary Medicine Bottles

Strictly interpreted, proprietary medicines are preparations whose formula, process of manufacture, name, trademark, package design, advertising, and other features making up its commercial image are the

property of a specific proprietor. The nature and concentration of ingredients that compose proprietary medicines are rarely revealed by the proprietor to the consumer, thus preventing intelligent criticism of its therapeutic claims. In America, such nostrums have usually been known as "patent" medicines, a misnomer derived by lineal descent from the class of early English medicines granted "Letters Patent" by Parliament after the Statute of Monopolies was enacted in 1624. The first real medicinal patent was granted in England in 1698 to Dr. Nehemiah Grew, F.R.S., for his Salt of Purging Water (Matthews 1962:283). Subsequent English patents such as Richard Stoughton's Cordial Elixir (1712), Dr. Bateman's Pectoral Drops (1726), and Robert Turlington's Balsam of Life (1744) were heavily exported to the American colonies prior to 1776 by their London manufacturers.

As demand increased in America, so did the incidence of imitation by colonial merchants. Distinctively shaped bottles matching the originals could be purchased abroad and filled on American shores with approximate contents, and empties could be recycled without leaving home. Starting early in the nineteenth century, American glassworks fabricated bogus vials that undercut the cost of imported bottles (Young 1961:12, 14-15). In fact, the flattened pear-shaped bottle of Robert Turlington, the tall conical bottle for Godfrey's Cordial, the short cone used for Dalby's Carminative, and similar "Patent Medicine Vials" of traditional form (see Figure 7.29) were listed in American druggists' glassware catalogs for at least another 100 years (Innes 1976:225; Putnam 1965:63; Whitall, Tatum & Co. 1880:47). As for the formulas of the proprietary medicines, all had originated from or eventually had been included in seventeenth- and eighteenth-century pharmacopoeias, and American medicine makers were thus able to provide reasonably accurate imitations, both in appearance and content (Young 1961:13).

Post-Revolutionary War America created its own patent and copyright laws in 1790, but relatively few medicine makers patented their remedies so as to avoid disclosing the ingredients and process of formulation in the registration document. Nevertheless, virtually all secret-formula purgatives, carminatives (producing expulsions of gas from the stomach and intestines), pain killers, liniments, and similar proprietaries were persistently



Figure 7.28: Interior of a Traditional Chinese Store c. 1900. . . reveals shelves lined with old-fashioned Chinese ceramic vessels which held, among other substances, medicinal herbs that were much the equivalent of Western drugs. Distinctive glass-blowing techniques used in Chinese medicine vials (see Figure 7.27) may reflect their manufacture in China. (California Historical Society)

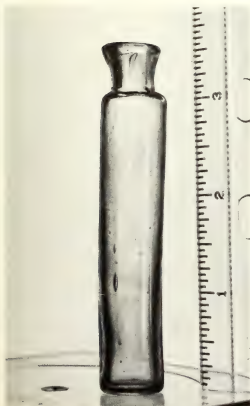


Figure 7.29: Patent Medicine Vial . . reflects a time-honored shape. Vermifuges and St. Jacob's Oel were both packaged in bottles of this basic configuration.



known as "patent" medicines well into the twentieth century--a habit carried over from colonial times.

Following the American Revolution, a wave of cultural nationalism launched many nostrums of purely American invention. The sources for most of these herbal and chemical concoctions were the pharmacopoeias again, but others were the favorite prescriptions of legitimate physicians and apothecaries and folkloric remedies advanced by such diverse and unlikely laymen as widows, slaves, carpenters, bootblacks, and grocers. Although some domestic preparations had surfaced during colonial days, not many bore distinctive names until the turn of the nineteenth century, when greater ingenuity was displayed, and Sovereign Ointments, Grand Restoratives, and Damask Lip-Salves came on the market (Young 1961: 18, 32).

To hold this flourishing multitude of proprietary medicines, glass bottles of many sizes and shapes were required. Of course, druggists of all kinds were heavily involved in the trade, and the inexpensive apothecary's vials available to them from local glassworks answered the need. Thus, the majority of nineteenth-century nostrums were put up in standard druggists' glassware, with contents identified on simple paper labels (McKearin and Wilson 1978: 283). Envisioning success on a grander scale, however, some manufacturers saw the advantages gained by the early English patents with their individualized bottle shape and embossing. In the N-5 collection, most of the embossed proprietary medicine bottles possess traditional drug bottle forms which can be described by the terms of classification established above. Their unique personalities, however, reside in the mixture of identity and novelty in their embossing (see Figures 7.30a-h).

The heyday of the movement by medicine proprietors to cash in on the credulity of the American citizenry began after the Civil War and ended with the passage in 1906 of the Pure Food and Drugs Act. The tremendous success of proprietary medicines was in no small part due to a highly calculated and intense program of advertising, which was manifested in millions of newspaper and magazine advertisements, almanacs, trade cards, calendars, and other printed promotional materials created and distributed to seemingly every city and hamlet in the world (Young 1961:141).

Pharmaceutical Preparation Bottles

Pharmaceutical drugs are pure substances or mixtures of known composition that are not advertised to a general audience but to the pharmacy, medical, and allied professions. Another name adopted for these non-secret preparations is "ethicals" (Matthews 1962:282), and for the most part they are made by firms that specialize in the manufacture of pharmaceuticals. In the nineteenth century, such firms usually styled themselves as "manufacturing chemists".

The roots of industrialized pharmacy lie in the back-room laboratories of drugstores, especially in Europe. In America, the Revolution made it difficult to import drugs, stimulating home production in some of the better equipped shops. Eventually, manufacturing, wholesaling, and dispensing became separate and distinct pharmaceutical branches, with nineteenth-century manufacturers developing the machine techniques that removed from community drugstores their age-old function of making drug products. American contributions to percolation and other processes of drug extraction (notably by Edward R. Squibb, J. I. Grahame, and William Procter, Jr., between 1845 and 1875) resulted in the availability to the trade of fluid extracts, tinctures, alkaloids, and other standard preparations requiring alcoholic extraction. In 1866, William R. Warner, a Philadelphia pharmacist, became one of the first and most successful of the large-scale makers of sugar-coated pills. Another Philadelphian, Jacob Dunton, constructed in 1864 the first compressed-tablet machine, basically a simple hand punch. The first automated tablet machines did not come into use until 1875 (Sonnedecker 1963:288-289).

John Wyeth & Bro. of Philadelphia listed hundreds of their "Elegant Pharmaceutical Preparations" such as elixirs, syrups, wines, fluid extracts, suppositories, pills, and compressed tablets in an 1883 wholesale druggists' catalog (Crittenton 1883:145-160). One of Wyeth's bottles is present in the collection (Figure 7.31). Its use for a pharmaceutical preparation is suggested by a similarly embossed but larger bottle pictured by Blumenstein (1966:80). The latter specimen's labeling indicates the contents as "Beef, Wine and Iron," a tonic preparation available from Wyeth in pint bottles

Figure 7.30a-7.30h: Proprietary Medicines Utilized Standard Bottle Types. . .
 Proprietors ordered lettered plates from bottle-making firms to stamp the name of the company or product on the bottle body.



Figure 7.30a: Ayer's Co., in square panel type



Figure 7.30b: Justin Gates Sarsaparilla, in panel type with oil finish

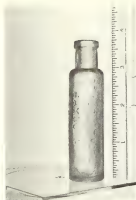


Figure 7.30c: Dr. Koenig's Hamburger Tropfen, in patent medicine vial



Figure 7.30d: French Pharmacy Bottle, in oval type



Figure 7.30e: St. Jakob's Oel, in patent medicine vial



Figure 7.30f: Vegetable Pulmonary, in patent medicine vial



Figure 7.30g: Wakelee's Camelline, in "Blake" type



Figure 7.30h: Mexican Mustang, in round prescription type



(Crittenton 1883:147). The bottle found in the collection, however, has a capacity of four fluid ounces, and the only products listed in the 1883 catalog in that smaller size were fluid extracts (see Figure 7.32).



(Crittenton 1883:147). The bottle found in the collection, however, has a capacity of four fluid ounces, and the only products listed in the 1883 catalog in that smaller size were fluid extracts (see Figure 7.32).

NOTES ABOUT SAN FRANCISCO'S LEADING DRUGGISTS AND DRUGS

The Careers of Druggists Justin Gates and H. P. Wakelee

It must have been both a surprise and disappointment to the residents of Sacramento, California, when in 1880 the respected druggist Justin Gates (1827-1888) removed his family and business to San Francisco. Years before, an editor for the **Alta** had prophesied, "Mr. Gates settled in Sacramento at an early day, engaging in his vocation of druggist, where he has ever since remained, and where, probably, he shall 'sleep the sleep that knows no waking' " (**Daily Alta California** 1866). In the same year that the editorial appeared in the San Francisco newspaper, Gates made an absentee investment in one of that city's business firms--William H. Keith's drugstore at 219 Montgomery in the Russ House Block. The store's name became "Gates & Keith", and three years later the sign on the shop boasted Gates' trademark--a large golden mortar and pestle--and read, "Justin Gates & Bros." (Brother James H. Gates ran the store. Back in Sacramento, Justin continued to operate a wholesale and retail drug business and manufacture a line of proprietary medicines (Langley 1866, 1869; Draper 1869).

Justin Gates, a California pioneer, had arrived at the Golden Gate on September 1, 1849, in the bark **Linda** after a five-month passage via Cape Horn from his native state of New York. Although he was part owner of the vessel that had carried him to the West along with 39 other prospective miners, within a year Gates had turned his attention to the riverfront town of Sacramento and was providing his services as a "botanic physician" (**San Francisco Call** 1888). By 1853, a drugstore had been set up on K Street at the "Sign of the Golden Mortar", and, in addition to a full line of other patent and botanic medicines, he was agent for Dr. Robinson's Mountain Extract, a remedy that claimed to "cure fever and ague in one day" (Coleville 1853:14).

The most impressive of Gates' several Sacramento stores was the two-story building at the southwest corner of Sixth and J streets which he occupied beginning in 1862. An outside stairway on the Sixth Street side of the structure led to the second floor offices of Dr. Thomas Hall, a physician who had lent his name, probably posthumously, to a small group

FLUID EXTRACTS.

A deduction of 5 cents per lb. from the list prices when ordered in bulk (5 lb. bottles). No charge for bottles.

When ordered in 8 and 4 oz. bottles, we charge 5 cents extra for each bottle.

	PER LB.
Aconite Leaves. Aconitum Napellus.....	\$1 00
Aconite Root. Aconitum Napellus.....	1 10
Aloe. Aloe Socotrina.....	70
Angelica Root. Angelica Atropurpurea.....	90
Anised. Pimpinella Anisum.....	1 25
Angustura Tree. Galipea Officialis.....	1 35
Arbor Vitæ. Thuja Occidentalis.....	1 20
Arce Nut. Arce. Catechu.....	1 80
Arnica. Arnica Montana.....	1 00
Aromatic. (Pulvis Aromaticus, U. S. P.).....	2 00
Avena Root. Geum Rivale.....	2 00
Bael Fruit. Egle Marmelos.....	90
Balm. Chelone Glabra.....	80
Bayberry. Myrica Cerifera.....	75
Balm. Melissa Officialis.....	1 00
Barberry Bark. Berberis Vulgaris.....	1 00
Bearsfoot. Polymnia Uvedalis.....	1 50
Belladonna Leaves. Atropa Belladonna.....	1 40
Belladonna Root. U. S. P. Atropa Belladonna.....	1 40
Berberis. Berberis Aquifolium.....	1 75
Beth Root. Trillium Pendulum.....	90
Bitter Root. Apocynum Androsæmifolium.....	1 05
Bitter Sweet, U. S. P. Solanum Dulcamara.....	80
Black Cohosh, U. S. P. Cimicifuga Racemosa.....	1 05
Black Cohosh Comm.....	1 00
Blackberry Root, U. S. P. Rubus Villosus.....	80
Black Haw. Viburnum Prunifolium.....	1 10
Black Hellebore. Helleborus Niger.....	1 00
Blood Root. Sanguinaria Canadensis.....	90
Blue C. Leaf. Caulophyllum Thalicteroides.....	90
Blue Flag. Iris Versicolor.....	1 00
Boldo Leaf. Peumus Boldo.....	3 80
Boneset. Eupatorium Perfoliatum.....	80
Broom Top. Scrothanthus Scoparius.....	80
Bryony. Bryonia Alba.....	1 10
Buchu Comp.....	1 30
Buchu, Long Leaf. Barosma Serratifolia.....	1 90
Buchu, Short Leaf. Barosma Crenulata.....	1 20
Buchu and Pereira Brava (equal parts).....	1 50
Buckhorn Berries. Rhamnus Catharticus.....	90
Buckhorn Bark. Rhamnus Frangula.....	80
Bugleweed. Lycopis Virginicus.....	85
Burdock. Lappa Officialis.....	90
Butternut Bark. Juglans Chloræ.....	85

Figure 7.32: Wyeth's "Elegant Pharmaceutical Preparations". .included tinctures, essences, and extracts of substances from Aloe to Ziziphus, as is clear from this page of the firm's 1883 catalog.

Figure 7.31: Wyeth & Bro, Philada. .The union oval contained one of the hundreds of products marketed by the large firm.

1849.

1874

JUSTIN GATES & BROS.,**Wholesale Druggists****AND****Manufacturing Chemists.**

EXPERIENCE AND OPPORTUNITY,
KNOWLEDGE AND ENDEAVOR,
DETERMINATION AND ABILITY,
LABOR AND SUCCESS,

Are all united to maintain the Character and Reputation already established as the

Leading Drug House of the Pacific Coast!

“Everything in our line always on hand, Wholesale and Retail.”
PRESCRIPTIONS CAREFULLY COMPOUNDED.

Sign of the Golden Mortar and Lion.

Corner of Sixth and J Streets, - - - SACRAMENTO.

Figure 7.33: "Leading Drug House Of The Pacific Coast". .proclaimed an 1874 ad for Justin Gates' firm, then still located in Sacramento. Gates later moved to San Francisco where he continued to prosper. (Sacramento Directory, 1874, p. 42)





of proprietary medicines manufactured by Justin Gates and Bros. On September 5, 1866, a copyright was registered in the District of Northern California by Gates for Dr. Thomas Hall's Cough Mixture, Pills, and Aque Mixture. A later addition to the line was Dr. Hall's Chloroform Liniment (**Sacramento Reporter** 1871). According to the copyright document, Dr. T. Hall, M.D., originated the prescriptions for these remedies back in the early 1850s, but he failed to enjoy the fanfare created by Justin Gates for his inventions, having succumbed to the rigors of frontier life in May 1865 (**Sacramento Bee** 1865).

The first indication of Gates' lion trademark appears in an 1874 advertisement for his store located at "Sign of the Golden Mortar and Lion" (Figure 7.33). Also, an early Sacramento druggist who practiced a few blocks away from Gates recalled that cast iron lions guarded the entrance to his corner store (Thomas McAuliffe, California State Library, Sacramento). This information may help date the prescription bottle bearing an embossed lion (Figure 7.17) to the approximate period 1874-1879.

When Justin Gates decided to forsake the City of the Plain for the City by the Bay, he sold his one remaining store at Sixth and J streets to Charles Bell and Fred Kolliker. Arriving in San Francisco sometime during 1880, he purchased the bath house formerly operated by a Dr. Ellis at 722 Montgomery Street and elaborately renamed it, "Dr. Justin Gates' Turkish and Russian Steam Baths and Medical Sanitarium". The operation included a drugstore (Langley 1881). Gates may have transferred part of his Sacramento stock to the new store, especially personalized items such as embossed bottles. This would explain the appearance of the Gates' Sacramento bottles dating from the late 1870s in the N-5 fill (Figures 7.17 and 7.26).

Moving into politics, Justin Gates was twice nominated for supervisor of the First Ward, serving during 1885-1886. On June 15, 1888, a recurrent malarial fever finally overpowered him, and he died at the age of 61 (**San Francisco Call** 1888).

Druggist Henry Peck Wakelee made his first visit to San Francisco in July of 1850, arriving on the steamer **Panama** (Rasmussen 1965). His whereabouts

for the next five years is uncertain, but he may have returned to his home in Buffalo, New York, following a try at mining in California. In 1856, however, he resurfaced as the San Francisco agent for G. H. Wines & Company's Atlantic, California, and Oregon Express (Colville 1856). Expressing, too, was apparently a short-lived occupation, and falling back on earlier training as a druggist, Wakelee purchased Benjamin B. Thayer's pharmacy on Montgomery Street in 1858. The aggressive and experienced Thayer was retained to manage the dispensing department (Steele 1909:253), and Wakelee immediately began creating a professional image for his concern. Directing his advertising toward the medical establishment, he informed local practitioners that he stocked an extensive line of drugs and chemicals, medical and other scientific books, desirable French proprietaries, and examination and surgical instruments. If a particular instrument was not available in the city, he promised to have one manufactured to order (**San Francisco Medical Press** 1860).

Located first at the corner of Montgomery and Sutter streets, Wakelee soon moved to the ground floor of the newly constructed Occidental Hotel, one block north on Montgomery at the southeast corner of Bush Street (Langley 1865). This site became headquarters for several business operations bearing the Wakelee name until the earthquake and fire of 1906 destroyed that part of the city.

In addition to his pharmaceutical pursuits, Wakelee also involved himself in the manufacture of concentrated mineral acids. In 1868, he was listed as the manager of the Golden City Chemical Works at the northwest corner of Seventh and Townsend streets (Langley 1868). The presence of this manufactory in San Francisco helped to reduce the necessity of importing this hazardous cargo from the East, and the works held a contract for supplying the nitric, muriatic, and sulfuric acids used by the United States Mint and the San Francisco Gold and Silver Refinery (Steele 1879:620).

For the manufacture and bottling of medicinal proprietaries, Wakelee formed an association in 1870 with the firm of Painter and Calvert, manufacturing chemists at the southeast corner of Clay and Kearny streets. Their products included Burdell's Oriental Tooth Wash, Dr. James White's

Cough Mixture, and a hair restorative that Wakelee had been handling since 1860, Nelson's Extract of Roses & Rosemary (California Trademark Nos. 135, 165-166, registered April 21, 1870). The tooth wash was compounded after the formula of a well known pioneer dentist in San Francisco, Dr. Galen Burdell (Eldredge 1915: v.4: 476).

Moving into the market dominated by the established San Francisco complexion remedy, Dickey's Creme De Lis, Wakelee produced a competitive preparation in June 1878. Featuring the camellia flower rather than the lily of Dickey's preparation, Wakelee's Camelline promised "to restore the color of youth, and remove unpleasant eruptions and sallowness." It was also recommended for the relief of sunburn and poison oak, and even for cleaning teeth (California Trademark No. 454, registered September 17, 1878). Like most complexion cures, the preparation came in a blue bottle for the simple reason that it was an attractive color and that "lily-white" skin lotions appeared whiter in blue bottles. The earlier embossed-form Wakelee's blue Camelline bottles were a medium blue shade (see Figure 7.30g), while the later, more common bottles were a deep cobalt blue. The proprietaries manufactured by Wakelee & Co. in the early 1880s are listed on the billhead reproduced in Figure 7.34. In 1877, Wakelee took in a junior partner, Charles W. Randall, and the firm name changed to "H. P. Wakelee & Co.", a fact which assists in dating the company's prescription bottles (see Figure 7.18).

In June 1880, H. P. Wakelee traveled to Mexico and then to New York on a business and pleasure trip. He visited with family and friends in his native state for some three years before an accidental fall on an icy sidewalk in New York City on January 8, 1884, caused a fatal brain concussion (**San Francisco Call** 1884).

Bottles Embossed with Proprietary Medicine Names and Companies

Many of the bottles found at the N-5 site were embossed with the names of popular proprietary or "patent" medicines or the manufacturers of the medicines. These bottles included the following brands.

Ayer's Pills: Ayer's Cathartic Pills were offered by Dr. James Cook Ayer of Lowell, Massachusetts, as early as 1854 (testimonials reproduced in Wilson 1971: 18).

Burnett's Cod Liver Oil: Joseph Burnett was a partner in the drug manufacturing firm of Theodore Metcalf & Co. of Boston until he formed his own business in 1847. Metcalf produced cod liver oil under the proprietary name of "Burnett's", advertising for which exists for the years 1864 and 1879 (Holcombe 1937: 653; Baldwin 1973: 92). The famed flavoring extract (see Figure 7.23) was later produced by Joseph Burnett.

Cuticura System of Curing Constitutional Humors: In 1868, the Boston druggist firm of Weeks & Potter was the wholesale agent for Burnett's Flavoring Extracts (see Figure 7.23) and other proprietaries made by Joseph Burnett & Co. (*Harper's Bazaar*, June 6, 1868). In 1878, Weeks & Potter developed a remedy of their own design, an ointment for skin afflictions named "Cuticura". The name was coined from a combination of the Latin cutis meaning skin and cura signifying care (United States Trademark No. 5994, registered April 30, 1878). The Cuticura line was quickly expanded, and on May 24, 1879, an advertisement in *Harper's Weekly* entitled "The Skin and Scalp" promoted a "System of Blood and Skin Purification, Treatment for Affections of the Skin, as well as the System for Curing Constitutional Humors". Six Cuticura-brand skin-care products are still being marketed by the Campana Division of Purux Corporation (American Druggist *Blue Book* 1978: 203).

Davis' Vegetable Pain Killer: This opium-based cure-all was manufactured by Perry Davis & Son of Providence, Rhode Island, and distributed in California by Park & White of San Francisco as early as 1860 (see Figure 7.35). In 1866, the bottles were made in a glassworks in New London, Connecticut (McKearin and Wilson 1978: 298). The specimen in the N-5 collection is similar to the bottle pictured in a trade card produced c. 1880, suggesting little change in basic bottle design since 1860.

Gargling Oil: Dr. George Merchant established his Gargling Oil liniment factory in Lockport, New York, in 1833. By 1866, one million bottles were reportedly made for the company by the local Lockport Glass Works (McKearin and Wilson 1978: 139). The gargling oil bottle (sans neck) found in the collection was blown in the same mold (no period after "Y" in

Figure 7.35: Advertisement For Perry Davis' Vegetable Pain Killer. . . was included as part of an 1860 promotional almanac distributed by the agents for the product in San Francisco. Four sizes of embossed bottles were in use at that time, ranging from 12- $\frac{1}{2}$ ¢ to \$1.00 in price. (Author's Collection)



TAKEN INTERNALLY, CURES

Sudden Colds, Coughs, Fever and Ague, Dyspepsia, Asthmas and Puffing, Liver Complaint, Acid Stomach, Headache, Indigestion, Heartburn, Canker in the Mouth and Stomach, Canker Rash, Kidney Complaints, Piles, Sea Sickness, Sick Headache, Cramp and Pain in the Stomach, Painters' Colic, Diarrhoea, Dysentery, Summer Complaint, Cholera Morbus, Cholera Infantum, and Cholera.

APPLIED EXTERNALLY, CURES

Scalds, Burns, Frost Bites, Chilblains, Sprains, Bruises, Whitlow, Felons, Boils, Old Sores, Ringworms, Rheumatic Affections, Headache, Neuralgia in the Face, Toothache, Pain in the Side, Pain in the Back and Loins, Neuralgic or Rheumatic Pains in the Joints or Limbs, Stings of Insects, Scorpions, Centipedes, and the Bites of Poisonous Insects and Venomous Reptiles.

*A fresh supply of the
PAIN KILLER
just received and for
sale by*

DRUGGISTS EVERYWHERE.

PARK & WHITE,

General Agents for

CALIFORNIA,

132 Washington St.,

SAN FRANCISCO.

Figure 7.34: Wakelee & Co. Billhead, Dated 1884. . . lists the company's line of drugs and lotions, which ranged from Camelline to squirrel exterminator.

San Francisco,

July 29 1884

Proprietors and Manufacturers of
**CAMELLINE,
AUREOLINE,**

CAMELLINE FACE POWDER,
BURDELL'S TOOTH WASH,
BURDELL'S TOOTH POWDER,
VANILIA-BURDELL'S & JESSUP'S TOOTH POWDERS
WAKELEE'S CAMPHOR ICE,
WHITE ROSE FACE POWDER,
BENZINE AND THOLINE,
WAKELEE'S SQUIRREL EXTERMINATOR,
WAKELEE'S EXTRA COLICKE,
WAKELEE'S PHOTOKLORIDE IRON.



WAKELEE & Co.

DRUGGISTS AND APOTHECARIES,

142 MONTGOMERY STREET, CORNER BUSH.

Under Occidental Hotel.



"N.Y.") as the one pictured in Wilson (1971:61). The complete specimen possesses an oil finish lip atop a neck approximately two centimeters high. A trade card for the product states that bottles with yellow wrappers were for animal use, white wrappers for "human flesh".

Giles & Co.: An advertisement in the July 3, 1875, issue of **Harper's Weekly** indicates that this liquid was meant for man or animal (Baldwin 1973: 201), and on May 29, 1877, a United States Trademark (No. 4690) was registered for the preparation by William M. Giles & Co. of New York City.

Hall's Sarsaparilla: Richard Hall first advertised this popular San Francisco "blood purifier" in 1859 (**Weekly Oregonian** 1859) from his location at 143 Clay Street. Proprietorship was secured by James Russell Gates & Co. at 417 Sansome Street in 1869 (Langley 1869:675). The advertisement for the sarsaparilla (see Figure 7.36) accompanied similar promotions for Gates' other proprietaries, e.g., Hall's Pulmonary Balsam, Dr. Price's Dyspeptic Bitters, Dr. Barnes' Essence of Jamaica Ginger, Dr. Perry's Last Chance, and Bitter Witch (1876).

Dr. August Koenigs Hamburger Tropfen: Koenigs Hamburger Tropfen or drops from Hamburg, Germany, was the fanciful creation of August Vogeler & Co. of Baltimore, Maryland, in 1872. It was promoted in the German language to compete with similar Teutonic remedies (Trademark No. 5108, registered August 28, 1877).

Doctor C. McLane's American Worm Specific: Although advertised as early as 1842 (Baldwin 1973:334), this worm expeller or vermifuge was promoted most extensively by Cochran and John Fleming, proprietors of the brand in Pittsburgh from about 1855 until the 1880s (Holcombe 1939:369).

Mexican Mustang Liniment: Promoters of this petroleum-based liniment capitalized on the reputation of fleet-footed and strong wild mustang horses in Mexico. Admiration for the animals had developed during the mid-century Mexican War when they proved their superiority over the American Army

horse. Use of a particular formula of liniment by the Mexican lancers was also supposed to be a factor in their vitality. George W. Westbrook of St. Louis, Missouri, was the probable originator of the product image in America about 1849 (notation in United States Trademark No. 24592, registered April 24, 1849), and it passed through a succession of proprietors until 1872, when the Lyon Manufacturing Co. of New York City took charge. Behind the corporate name, drug moguls such as John F. Henry, Demas S. Barnes, and Patrick H. Drake were holding the reins. Mexican Mustang Liniment was put out by this firm well into the twentieth century (Holcombe 1970: 403-404).

New York Pharmacal Association: In 1878, John Carrick of New York City set up a marketing organization at 2 College Place for his group of pre-digested foods and digestive enzymes (Trow 1878:224, 1079). The most popular was Lactopeptine, which was mentioned in the city directory listings from 1879-1881. An embossed bottle including the name "Lactopeptine" and indicating its value in digestive disorders is pictured in Wilson (1971:54). The New York Pharmacal Association was last listed in directories in 1885, at which time the various products were dispersed among Carrick's other marketing firms.

Pearson's Pills: The bottle's duplicate inscription in Spanish suggests probable distribution in California, Mexico, and South America. "American Indian Sugar Coated Pills", sold at mid-century under the name of C. Pearson & Co., proprietors in England, may have been the cathartic or "liver" pill contained in this bottle (Griffenhagen 1971:15).

Pharmacie Grimault & Cie: Although the bottle's embossing does not prove that the bottle contained a proprietary medicine, there is evidence that this firm manufactured drug products for American consumption in an 1868 advertisement which reads, "Grimault's Syrup of Iodized Horse-Radish, a perfect substitute for cod liver oil, manufactured by Grimault & Co., chemists to H.I.H. Prince Napoleon, Paris, France" (Baldwin 1973:214). In a dissimilar bottle, this same preparation is pictured in Ferraro (1966:28) with its original label, revealing that the American distributor was E.

Fougera & Co., (cf. below, in following section) of New York City. In 1883, at least six Grimault proprietaries were being offered by a New York wholesale druggist (Crittenton 1883: 56, 128).

St. Jakob's Oel: Originally sold under the name of "Keller's Roman Liniment", this preparation was renamed St. Jacob's Oil in 1877 by Charles A. Vogeler of A. Vogeler & Co., Baltimore. He tinted it a red color, and with intensive advertising it became very successful (Holcombe 1947: 172). The "Jakob's Oel" embossing found on every example of the common bottle alleged its germanic origin, and the embossed bottle is featured in the hand of a hoary monk on an 1883 almanac cover (see Figure 7.37).

Sanford's Radical Cure: This remedy for catarrh or inflammation of mucous membranes, especially in the upper respiratory tract and sinuses, was first promoted by Weeks & Potter, wholesale druggists in Boston in 1879 (Baldwin 1973:430; Holcombe 1938:168). An analysis conducted in the 1880s showed the cure's major ingredients to be extract of witch hazel (Hamamelis) and morphine (Oleson 1903:151). Although the specimen in the collection is without a neck, a similar bottle pictured in Wilson (1971:81) has an extract lip atop a neck of about four centimeters in height.

J. R. Stafford's Olive Tar: James R. Stafford advertised this cough and consumption cure as early as 1855 (Baldwin 1973:464), and by the mid-1860s another New York City firm, Hall & Ruckel, was the advertised proprietor (Holcombe 1942:10).

Tarrant & Co.: Although no product name is embossed on the bottle, the name Tarrant was associated with proprietary medicines since the 1840s (Baldwin 1973:477). Chief among these is Tarrant's Effervescent Seltzer Aperient, a concentrated powder for making an instant "fizz" to solve gastrointestinal complaints. The firm's name, "Tarrant & Co.", was first employed in 1862; it changed to "The Tarrant Co." in 1902 (Trow 1862, 1902).

Dr. Thompson's Eye Water: This preparation for sore eyes was evidently invented by a Dr. Isaac Thompson of New London, Connecticut, and advertised as early as 1808 when it sold for 50¢ a bottle (Putnam 1968:19). Manufacture was later removed to Troy, New York, where John L. Thompson at 161 River Street was the sole proprietor from 1863 to 1890 (see Figure 7.42) (Toppan et al. 1899:306).

Vegetable Pulmonary Balsam: Advertised in 1828 for 5¢ a bottle, this cough syrup was popularly known as "Reed & Cutler's" or "Cutler's" by mid-century. The full name of the proprietor was Reed, Cutler & Co., wholesale druggists in Boston, Massachusetts (Blasi 1974: 35, 37; Putnam 1968: 40, 46). After 1883, it was being offered in three sizes by a New York City wholesaler (Crittenton 1883:7).

Dr. Wistar's Balsam of Wild Cherry: This combination of wild cherry bark and tar was invented by Dr. Henry Wistar of Virginia and first advertised for curing consumption or tuberculosis by Lewis Williams & Co. of Philadelphia in 1841. Williams became full proprietor in 1844 and immediately transferred ownership to Isaac Butts of New York City, who had been involved with the product at least since 1843. In March 1845, all rights were sold to Boston druggist Seth W. Fowle, including the bottle molds for the eight-sided container, which is embossed like the specimen in the collection. The "IB." inscription presumably stands for Isaac Butts. The firm of Seth W. Fowle & Sons of Boston were still proprietors in the 1870s (testimony in **Fowle v. Spear**, Circuit Court Eastern Dist. of Penna., Nov. 7, 1847; Blasi 1974: 161-162.) Two sizes of the Balsam were offered by a New York City wholesale druggist in 1883 (Crittenton 1883:7).

Bottles Embossed with Names of Eastern Druggists and Manufacturing Chemists

Some of the bottles found at the N-5 site were embossed with the names of leading druggists and manufacturing chemists operating on the East Coast of the United States. Their names and brief histories are annotated below.

Plourisy.—Take a wineglassful of Dr. Price's Bitters three times a day, and apply a mustard plaster. If this does not relieve in twenty-four hours, put on a blister or six leeches, keeping the bowels open with the bitters.

Rheumatism.—Take the Sarsaparilla in all cases, keep the bowels open with Dr. Perry's Wolf-foot pills. These remedies will cure any and every case.

Ringworm.—Keep clean with warm water and Castile soap, and apply Hall's Rosemary Cerate night and morning.

Sail Rhoeum.—Hall's Rosemary Cerate and Sarsaparilla are the best remedies in use.

Sorefula.—In all its varied forms, can be cured by the continued use of Hall's Sarsaparilla, Yellow Dock, and Iodide of Potass.

Scurvy.—Regulate the bowels with Dr. Perry's Wolf-foot Pills, and purify the system with Hall's Sarsaparilla.

Sick Head-ache and Nervous Headache are induced by constipation, or derangement of the digestive system. Price's Bitters taken as directed is a sure cure.

Sore Ears, Piles, and other similar affections, are often the direct effects of scurvy. Cure, Hall's Sarsaparilla.

Sore Eyes.—Apply a little of Hall's Rosemary Cerate to the edge of the eyelids at night.

HALL'S SARSAPARILLA YELLOW DOCK AND IODIDE OF POTASS.

Is a compound unequalled by any other mixture that has ever yet been offered to the public, and recommended for the same purpose, as all who have used the different "sarsaparillas" will testify.

Aside from the testimony of the thousands who have used this medicine with beneficial results, the fact of the large and increasing sale is of itself sufficient evidence of its true merits, and shows plainly the estimation in which it is held by the community at large. Unlike other preparations, persons using HALL'S SARSAPARILLA can know that the medicine is having the desired effect, either taking three or four doses, from the symptoms, such as a free and easy discharge from the nose, increased appetite and flesh, eruptions on the skin, increased flow of urine, and in some cases, considerable cerebral excitement will be observed; and, if three doses be taken, loss of sleep of the bowels. These are some of the effects which will be experienced to a greater or less extent, according to the nature of the case, affording satisfactory evidence that the medicine is doing its work.

We would advise persons requiring an effective medicine to give it a trial, for we are sure that a single bottle will convince the most skeptical that it is all that it is represented to be.

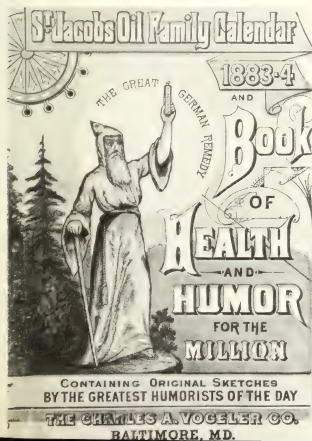
For Sale by all Druggists.

Figure 7.36: Hall's Sarsaparilla. . . was one of dozens of brands of this popular product, "a compound unequalled by any other mixture. . . ever offered to the public." (Family Receipt Book and Almanac for 1876, J. R. Gates & Co., San Francisco, p. 33)

New England Homœopathic Pharmacy.
OTIS CLAPP & SON,
No. 3 ALBION BUILDING, BEACON STREET, BOSTON.
WHOLESALE AND RETAIL DEALERS IN
HOMŒOPATHIC MEDICINES,
BOOKS, FAMILY CASES, VIALS, CORKS, AND ALL OTHER ARTICLES IN THE
HOMŒOPATHIC LINE.
VETERINARY BOOKS AND CASES FOR STABLE USE.
Also Publishers of and Dealers in
TACHYGRAPHIC AND PHONOGRAPHIC WORKS.
BOSTON AGENTS FOR THE SALE OF EPPS' COCOA.

Figure 7.38: Clapp's Homeopathic Medicines. . . were advertised in the Boston Directory for 1873.

Figure 7.37: Almanac Cover Promoting St. Jacobs Oil. . . shows the close association between advertising, folklore, and proprietary medicines in the late nineteenth century. (Author's Collection)



Clapp's Homoeo Pharmacy: Otis Clapp & Son operated a wholesale and retail firm for homeopathic medicines in Boston during the 1870s. An 1873 advertisement describing their services indicates they also supplied products for veterinary use (see Figure 7.38).

E. & S. Fougera: Edmund and Stanislaus Fougera were first listed in the New York City **Directory** for 1850 as apothecaries at 30 N. William Street. By 1856, Edmund had established a branch in Brooklyn; Stanislaus was dropped from the firm's name after 1863 (Trow 1850, 1856, 1863). A large display advertisement appeared in an 1860 Brooklyn directory for "E. & S. Fougera's French Pharmacy, Brooklyn and New York; E. & S. Fougera Pharmaceutists to the Long Island College Hospital at 169 Atlantic St., Brooklyn." The hospital address is the same as that for the pharmacy (Lain 1860:11).

Keasbey & Mattison: Henry G. Keasbey and Richard V. Mattison formed their first partnership as chemists in Philadelphia in 1874 (Gopsill 1874:723). There they manufactured granulated effervescent salts such as magnesium carbonate--the probable contents of the bottle in the collection (White 1939: vol. 27:307). In 1879, a trademark was registered for their alkaloid preparations (United States No. 6949, registered January 14, 1879, for word "Dextro"). They began construction of a substantial chemical works in the small suburban town of Ambler, Pennsylvania, in 1881, and maintained offices in Philadelphia no later than 1892 (Hunsicker 1923: vol. 1: 355).

Wyeth & Bros.: John Wyeth first appeared in the Philadelphia **City Directory** in 1855 as a druggist on the southwest corner of Eighth and Walnut (Biddle 1855:616). John's brother, Frank H. Wyeth, joined him in 1859, and by 1869 the firm was styled "John Wyeth & Bro." The occupation "chemists" was added to their advertising by 1883, continuing at least until 1893. The name survives today as Wyeth Laboratories of Philadelphia, a major manufacturer of pharmaceuticals.

DRUG BOTTLES IN HISTORICAL ARCHAEOLOGY

Our consideration of the drug bottles in the N-5 collection has taken us as far afield as New York, Philadelphia, and London. However, apart from providing entertaining historical discursion we may ask what significance do the bottles have to the historical and archaeological understanding of San Francisco and other cities? Since the bottles were recovered from a situation of secondary, rather than primary, deposition, it has not been possible to associate them directly with consumption patterns of a particular group or activities at a known locale, as was the case at Sacramento's Golden Eagle Hotel (Praetzell et al. 1980).

Taken as a whole, the drug bottles do exhibit characteristics worthy of consideration as part of a reference collection. For instance, the 19.5% of the proprietary medicine bottles originally containing West Coast manufactures as compared to those containing products manufactured elsewhere was remarkably similar to the 19.4% determined from an analysis of the 1883 inventory of a Northern California drugstore (see above). Additional random samplings of San Francisco and other northern California trash sites will be necessary, however, before any definite conclusions can be reached concerning the relative importance of local versus "imported" goods in San Francisco of the 1880s.

Moreover, the bottles possess technological features of glasswork typical of the 1870s and early '80s, a finding consistent with our historical knowledge of the N-5 site. The conclusion has been arrived at through corroboration of technical details with patent dates and glasswares catalogs of the 1860s, '70s and '80s, and through noting the presence or absence of certain features of bottle construction. These include the absence of pontil scarring (with one exception), the minimal presence of separately applied lips, the presence of lettered plate molds, and the absence of artificial amber colored prescription bottles (rounds, ovals, etc.).

Our description and analysis of the drug bottles has been based largely on the terminology and classification derived from glassmakers' trade catalogs. This means of attributing nomenclature to bottle forms represents a useful advance in providing specific, documented reference terms for unembossed as well as embossed bottle types. These bottles

must otherwise be classified in cumbersome and lengthy descriptive terms, as in Switzer's treatment of the bottles found aboard the **Bertrand** (1974). At N-5, 139 out of the 178 "drug" bottles were unembossed, illustrating the degree to which unlabeled bottles are a category to be considered. Examination of Switzer's data and information from other historical sites will reveal that a high proportion of unembossed bottles is not unusual (Schulz et al. 1980; Switzer 1974).

To be sure, a classificatory scheme based on glassware manufacturer's terminology is not entirely consistent or without problems. The category "drug bottles" is itself, a priori, a distinction based on contents (though catalogs often use identifying terms such as "tincture" or "prescription" in connection with certain named types, thus suggesting their common use). But the designation of "round prescriptions" or "Philadelphia ovals" as drug bottles may be based on other types of solid evidence, as well. These include illustrations of common bottle types appearing in the advertising literature for drug products (Figure 7.35), and inspection of specimens in museum or private collections which still possess paper labels identifying the contents.

Drug bottles as a class promise to be important in future urban archaeological studies at sites containing primary deposition. Embossed specimens bearing the name and address of local pharmacies may provide clues in dating contexts, since firms are easily traced through city directories. In this respect the relatively small owner-operated nature of most nineteenth-century retail pharmacies is important. Changes in company names occurred frequently, reflecting the entrance and departure of brothers, sons, and different partners from businesses (see discussion of Justin Gates above). Addresses changed frequently, too, as businesses prospered and moved to larger quarters, or as fires or rebuilding required a move. Therefore, a name-and-address-bearing drug bottle may frequently be bracketed to a very short timespan when the company was at a given location.

Because small prescription bottles were not normally reused by druggists and because their contents were generally consumed soon after purchase, these bottles were frequently used and discarded soon after their manufacture. Thus, primary deposition is likely to correspond closely to

date of manufacture, again providing a tight framework for dating a site. As pointed out in Chapter 8, the deposition of soda water bottles may hinge on a different set of factors, and the patterns of usage and deposition for different bottle types are topics which will bear consideration by historical archaeologists in the future.

Other aspects of drug bottles may prove useful in the future as well. The distinctively shaped homeopathic medicine vials are easily identified, and as the inventory of historic sites grows, it may be possible to begin to identify the socio-economic correlates associated with use of homeopathic products. While we know a good deal about the contents, efficacy (or lack thereof), and advertising of proprietary or "patent" medicines (e.g., Young 1961, 1967; Wilson 1971; Holbrook 1959; Baldwin 1973), the specific patterns of usage for particular products and brands are less well known. This is one of the areas where historical archaeology conducted in sites of primary deposition will be able to shed light, and diverse reference collections such as the N-5 bottles are paving the way for those studies.

SPARKLING WATER: SODA BOTTLES AT N-5

To suffering man from Nature's genial breast
A boon transcendent ever mayst thou flow;
Blest holy fount; still bid old age to know
Reviving vigor, and if health repressed
Fade in the virgin's cheek, renew its glow
For love and joy. . . .

From marble tablet at the
Napa Soda Springs--a facsimile of
original at Carlsbad Spring in
Bohemia.

The bubbly pleasure of "soda water" entered American life during the last half of the nineteenth century. Reflecting on the earliest years of soda experimentation and production, James Tufts, a druggist who pioneered in the field, recalled that in 1863, "being in need of a soda-fountain for use in my drug-store in Somerville, Massachusetts, I invented and patented an apparatus styled the 'Arctic', which subsequently attained a wide popularity, and led me to abandon the drug business to engage in its manufacture. . . . Syrup-faucets bearing a star and liberty-cap. . . .distinguished this apparatus, which was noted for the coldness and consequent good quality of the beverage drawn from it" (1895:471). By 1895, Tufts estimated, soda fountains in the United States numbered between 50,000 and 60,000 and larger firms in San Francisco alone turned out as many as 150 dozen bottles of bubbly water a day as early as 1880 (Hittell 1882:571). Writing from San Francisco in the 1880s, Hittell described the booming soda economy: "This industry includes, besides the particular beverage which gives it its name, the various drinks flavored with lemon, sarsaparilla, ginger, etc., as well as bottled cider and artificial mineral water. . . . Annual consumption on the coast is about 10,000,000 bottles, containing a pint each, amounting in value to \$330,000" (Ibid.).

Soda water was widely distributed in bottled form, and nearly every town boasted of bottling works. This geographical fact meant that soda bottles were manufactured to be re-used, and they therefore carried the company name and sometimes its address in letters embossed in the glass. (This handy identifiability, combined with the durability of the heavy glass bottles, has made them popular collector's items today (Markota and Markota 1972; Colcleaser 1967).) Often tossed aside as useless litter, soda bottles frequently found their way into trash deposits, and it is no surprise that some 44 soda bottles embossed with the names of local firms were recovered at the N-5 site. (In addition, one bottle bears the embossed label of the famed Congress Springs of Saratoga, New York.) All are dateable by their embossings to the 1870s or early 1880s, and all are of the type called "blob top" by bottle collectors (Markota and Markota 1972).

Soda water, of course, is an artificially produced imitation of naturally carbonated spring water, and these beverages also enjoyed immense popularity during the nineteenth century. Famous natural mineral waters were bathed in, drunk at their source, and bottled for the delectation of people hundreds or even thousands of miles from the spring. Evidence of this early "health drink" industry was also recovered at the San Francisco N-5 site in the form of some two dozen European mineral and soda water bottles.

In this chapter, a distinction is drawn between naturally occurring mineral spring waters, which are bottled in the form in which they bubble from the earth, and artificially manufactured waters, which are produced by passing ordinary water through minerals or infusing water with artificially generated gases under pressure. Naturally occurring mineral spring waters will be referred to as "mineral water," while the manufactured product will be called "soda water." This easily made distinction, however, is far from absolute. Jackson's Napa Soda (a "mineral" water by our definition) was bottled using an elaborate process whereby the gas was siphoned off, then later reinfused into the water under pressure (Slocum, Bowen Co. 1881:296). In consumption practices and flavorings, moreover, the two types were sometimes indistinguishable. Jackson's Lemon Flavored Soda, a flavored mineral water by our terms, competed in the same market with flavored soft drinks using artificially produced carbonation. Finally, as

apparent from the example of Jackson's "Soda", the distinction in terminology was not one practiced by the distributors of sparkling waters.

Nonetheless, this separation of naturally occurring from chemically manufactured waters is useful for several purposes. "Mineral" waters were prized for their particular mineralogical qualities, and great attention was given to classifying their constituent parts which were perceived to be of medicinal or stomachic virtue. Many of the imported waters fall into this hygienic category, a fact which corresponds neatly with their archaeological distinctiveness as a class. On the other hand, "soda" waters were generally sold and consumed for their sweetness and their refreshment value. The distinction is the same as the one made today between Calistoga Water and Seven-up.

Mineral and soda waters may be further distinguished as imported or domestic brands. Although in nineteenth-century California the term "imported" frequently referred to goods brought to the state from other parts of the United States, as used here it designates bottles originating in foreign countries. The "domestic" mineral waters are those bottled at California's renowned mineral springs in Napa, Sonoma, Santa Clara, and other counties. Soda and mineral bottles of both foreign and United States origin were found at the N-5 dump site--although, as will be described below, it is known that some imported bottles were re-used by domestic bottlers. Finally, to illustrate the role of domestic soda and mineral water production and marketing in San Francisco of the 1870s, the careers of three local firms whose bottles appear in the N-5 collection will be briefly sketched. ("Local" included firms from the greater San Francisco Bay region, encompassing Napa, Sonoma, and Santa Clara counties, all of which are famed for their mineral springs.)

IMPORTED MINERAL WATER BOTTLES

Tall, graceful, cylindrical ceramic bottles (see Figure 8.01) finished with a salt glaze are commonly encountered in late nineteenth-century archaeological deposits. They also form a popular flea market sale item and are found in small antique stores, as well, at prices of a dollar or two. Various referred to as "gin", "Amsterdam ale", or "mineral water" bottles, they apparently held a number of different beverages.

There seems little doubt that the bottles were originally from Europe. Many bear incised stamps identifying their place of origin as Amsterdam or locations in Germany (see Figure 8.02). As will be shown below, this bottle type was a standard container for German mineral waters, and the quantities manufactured for use at the springs undoubtedly ran to many millions.

On the other hand, as with many types of bottles during the nineteenth century, it is clear that these European stoneware bottles were sometimes refilled, not always with their original contents. When this occurred, the new product was identified by a paper label pasted onto the bottle.

Some 15 of these ceramic bottles or bottle fragments bearing incised stamped labels were recovered at N-5. All the stamped labels identify the bottles as mineral water containers. Any paper labels which may once have been affixed to the bottles disintegrated during the bottles' century-long rest in the fill at N-5. As a result, the bottles pose a problem: did they hold liters of mineral water imported to enhance San Francisco's dinner tables, or did they enter the city refilled with gin, ale, or other beverages? Given present knowledge in the field of historical archaeology about this topic and the paucity of accompanying historical or archaeological data on the ceramic bottles, it is not possible at this moment to make a definitive answer. While there is positive evidence that European mineral waters were being imported to San Francisco in this era, some similar stoneware bottles found on the West Coast have contained alcoholic beverages. Based on research using primary sources, the recently issued report on bottles from Old Sacramento claims that the jugs were manufactured primarily in the Nassau Duchy of West Germany, with more than

Figure 8.01: Stoneware Mineral Water Bottles. . .were found in two sizes, some bearing the labels of famed German springs. Although popularly identified today as "ale" or "gin" bottles, these containers usually held spring waters. (Ed Torres)

Figure 8.02: Impressed Labels from Selters Mineral Water Bottles. . .The round marks identifying the Selters Spring were stamped high on the bottle body on the side opposite the handle, and they appeared on bottles with otherwise identical Selters labels. The accompanying smaller numbered marks were impressed lower on the bottle body, opposite the label side, perhaps to identify the individual bottle maker. In Scotland, these marks were used to tally production of stoneware ale bottles at piece work rates. (Jane Dill)



B
Num. 4

N5 V-46

2CM



H
Num. 34

N5 N-357

2CM



HERZOGTHUM NASSAU

A
Num. 47

N5 U-669

2CM





Figure 8.03: Mineral Water Bottles Were Sometimes Reused. . . as this specimen bearing a paper label for "Genuine Hollands Geneva" or gin testifies. The impressed Selters label, still visible above the paper sticker, identifies the original contents of the bottle. (Jack Prichett)

Figure 8.04: Pullna Water Bottle. . . is hand thrown, but distinctively squared. Water from this Prussian spring was particularly high in sulfate of soda and sulfate of magnesia. (Ed Torres)



40,000,000 pounds of stoneware mineral water bottles, beer mugs, and other wares produced annually by 1879 (Schulz et al. 1980:115).

Figure 8.03 shows one of these stoneware bottles in the half-liter size. The stamped label of the Selter's Spring in Nassau reveals that the bottle had been subsequently refilled with Schiedam Holland gin ("gin" is a corruption of the Early Dutch genever, or "juniper", a tree whose berries are used in the manufacture of the product. Hence, Geneva on the label signified gin.) Now in a private collection, the bottle was recovered from an attic in Northern California. Apart from its paper label, it is identical to bottles in the N-5 collection.

This documented re-use of the ceramic mineral water bottles has contributed, no doubt, to the sometimes vague or contradictory terms applied to them in the literature. Colcleaser (1967:37), for instance, shows an example which is classed among the "Whiskies and Other Alcoholic Beverages", even though it bears the stamped Selter's Spring mark and lacks any paper label to indicate that it ever contained gin. Likewise, the Wilsons (1968:167) illustrate a ceramic bottle bearing the Selter's label identical to those in the N-5 collection, but they class it as a "rum bottle", although again no paper label is present to suggest this usage. Switzer (1974: 13-15) describes 12 of the ceramic bottles recovered from the steamboat **Bertrand**, which sank in Nebraska in the Missouri River in 1865. The **Bertrand** bottles bore an impressed label reading "AMSTERDAMSCHÉ", while the crimped lead foil over the cork also bore the name of an Amsterdam firm. There is little doubt, then, that these bottles were originally produced for use in Amsterdam. Although Switzer writes that the bottles contained "Amsterdam Ale", he does not relate how the contents were determined, and his use of quotation marks suggests that he may simply be applying a conventional descriptive term. Thus, while the **Bertrand** ceramic bottles seem to be of unmistakable Dutch origin, their contents--gin, or ale, or mineral water--are not as assuredly certain from Switzer's description. The Old Sacramento report reveals that the archaeologists found ceramic mineral water bottles bearing the Birresborn and Selter's labels--both also found at San Francisco's N-5 site--but the authors note simply that "these jugs sometimes held gin and various liqueurs. . ." (Schulz et al. 1980:115).

Despite the uncertainty about the precise contents of the N-5 stoneware bottles when they were imported to San Francisco, their role in the European export mineral water trade can nevertheless be documented, as it is below.

"Table Waters" and "Purging Waters"

Widely valued for their claimed restorative and digestive properties, mineral spring waters occur where water bubbles up to the surface through limestone or other mineral formations which, in passing, impart their chemical properties to the waters. No absolute demarcation may be drawn between "ordinary" and "mineral" waters, however, because virtually all water except that which is distilled carries some mineral content. Nonetheless, certain key mineral ingredients, present in greater or lesser degree, have come to be regarded as the diagnostic constituents which distinguish "mineral" from ordinary water.

The scientific study of mineral waters and the attendant attempts to classify the waters according to their chemical constituents was of popular concern during the late nineteenth century. Winslow Anderson's famed essay, for example, "The Mineral Springs and Health Resorts of California," won the annual prize of the Medical Society of the State of California in 1890. Similarly, the **Encyclopedia Britannica** in its turn-of-the-century tenth edition, includes a lengthy article on mineral waters. The large scrapbook of newspaper clippings concerning the relative properties and health-bestowing merits of well-known springs compiled by Historian Hubert Howe Bancroft (Bancroft, **Scraps**, Bancroft Library) further testifies to a lively interest throughout California in the virtues of mineral waters.

A perusal of these various documents reveals that despite slight variation in categories, the system of classification spelled out in the **Britannica** article was that employed by most writers who elected to investigate mineral waters. For ease of reference, this **Britannica** classification is reproduced below (1902: vol. 16:433).

The figures in the table show amounts of particular ingredients, expressed in parts per thousand parts of water. Virtually all the famous mineral springs of Europe--Eifel, Bath, Baden-Baden, Vichy--fall into one or another of these categories.

Moreover, the benefits of the more famous European waters were available in bottles to people far removed from Switzerland or the Rhineland. Some of the water thus found its way to San Francisco and ultimately into the dump at N-5. A total of 15 of these imported mineral water bottles was collected, and they may be divided into two distinctive types. The first--tall, graceful German ceramic bottles--contained "Table Water" of various brands. The other, also ceramic but with sides flattened to yield a square appearance, contained "bitter" or "purging water." Bottle counts and measurements for the various mineral water bottles may be consulted in Appendix B. The discussion below covers more general considerations about some of the mineral water types found at N-5.

Table Waters

Table waters are characterized by carbonation which results in their sparkling lightness. They contain a relatively low quantity of salts, and a high quantity of carbonic acid. Drunk with or after dinner, "their practical importance in aiding digestion is in reality much greater than one could expect from their scanty mineralization" (MacPherson and Leeds 1902: 436). The authors of the 1902 **Encyclopedia Britannica** article note that the most famous natural table waters are "largely exported and imitated" (Ibid.).

At least two of the most famous nineteenth-century table waters are represented by bottles found at N-5. Apollinaris, a popular water, is still marketed today, its main constituents being carbonate of sodium and carbonate of magnesium, plus free carbonic acid (Gesundheits-Amt 1900: 14; MacPherson 1888: 259). Located in the Rhine Valley near Düsseldorf, the Apollinaris springs are cited in many guides to spas and springs of Europe. In 1900, one such guide noted that sales of the water amounted to about 27 million bottles a year, adding that "for the purpose of keeping the water fresh, a little common salt is added or the corks are soaked in



brine" (Gesundheits-Amt 1900: 14). The popularity and prestige of Apollinaris in San Francisco may be inferred from ads appearing in the **Pacific Wine and Spirit Review** during 1892 and 1893. William Wolff and Company, San Francisco importers located at 327-329 Market Street, listed mineral waters of the Apollinaris Company as one of the goods for which they were the Pacific Coast distributors, along with Martell Cognac, Pommery Sec Champagne, and other quality items. That the Apollinaris label begot jealous imitation is confirmed by an 1890s news report of a successful court action by the London-based Apollinaris Company to enjoin an American firm from marketing its product with a closely similar paper label (**San Francisco Call** 1894). (The water was, and still is, marketed by a firm headquartered in London.)

Perhaps the most famous of the table waters, however, was Selter's, which originates from two springs near Düsseldorf and only a few kilometers from the Apollinaris springs. One of these two springs, Ober-Selter's or Upper Selter's, bottled water for export beginning 1874, and by the turn of the century it had a reported annual sale of 1,300,000 bottles. The other spring, Lower or Nieder Selter's, reported annual sales of 4.5 million bottles at the close of the nineteenth century (Gesundheits-Amt 1900: 161). The stamped mark, "O. Selter's", on one of the bottles found at N-5 refers to water drawn from the "ober" or upper spring. Bottles bearing the Selter's label were also recovered in Old Sacramento where Selter's was being advertised in 1886 (Schultz et al. 1980: 116-117). This albeit indirect evidence at least indicates that the N-5 bottles may have arrived in San Francisco bearing their original contents and not some liquid from a second owner.

Another N-5 table water bottle originated from the Birresborn Mineral Springs in the Eifel region of Germany. The 1900 Gesundheits-Amt springs guidebook notes only that water from this spring was "principally bottled and sold" (1900: 32). In Old Sacramento, the archaeological context of nine recovered Birresborn bottles indicates "that the product was available in Sacramento by the 1880s." The N-5 bottle, deposited in the fill during the early 1880s, confirms that judgment.

One other brand of table water, Hermann's Born, was found at N-5. No further information about its qualities could be located.

MINERALBRI
BIRRESBORN
IN EIFE

HERMANN'S
BORN

Bitter or Purging Water

As the name suggests, these waters were geared to a different physical need than the table waters, a distinction which sometimes found expression in a different bottle shape. The effective ingredient of the bitter water was sulfur, occurring in the form of sulfate of soda, potash, magnesia, or calcium (MacPherson and Leeds 1902: 433). Also referred to as aperient waters, bitter waters were considered good medicine for biliousness, dyspepsia, hemorrhoids, urinary diseases, rheumatism, and gout. The most famous of these (a "household word", proclaimed one advertisement), was Hunyadi Janos Water, bottled at springs in Hungary (Colcleaser 1967: 82). Another well known aperient water was bottled at Pullna in Prussia (MacPherson and Leeds 1902: 463).

Two Pullna bottles were among the N-5 specimens. Like the table water bottles, they are salt-glazed, albeit on a different clay body which yields a tan and grey effect. Wheel-thrown, the round bottles were flattened with a paddle on four sides to produce a square shape (see Figure 8.04). In this connection it should be noted that many "bitters", including Dr. Hostetter's Stomach Bitters, the most famous of them all, also came in square bottles (see Young 1961; Holbrook 1959; Watson 1965: 136 passim). While the Pullna "bitter water" was not alcoholic, thus differentiating it from most other bitters, its purported medicinal values put it in roughly the same class, and the square-shaped bottle was probably intended to reflect this fact.



IMPORTED SODA WATER BOTTLES

Ginger Ale

The N-5 site produced over a dozen bottles which may be identified as the ginger ale type, and the number of them compared with other types in the sample substantiate the notion that ginger ale was the most popular class of non-alcoholic carbonated beverage in the United States from the 1870s until well after the turn of the century. Based on morphology or embossing, a total of 13 bottles from N-5 may be classed as ginger ales.

The British bottle commonly used for ginger ale was slightly taller than the usual soda water bottle of the day and claimed a rounded base. The rapid success of the product motivated imitators and competitors to use similar bottles, and thus a new generic style was born. The round-bottom ginger ale bottle was so identified with the popular British product that it was soon copied by domestic purveyors. In San Francisco, the firm of F. & P. J. Cassin first produced ginger ale as well as lemonade and double soda in round-bottom bottles in 1872, unabashedly pronouncing the products, "English Aerated Waters" (see Figure 8.07). An article in the **Wine Dealers Gazette** describes these waters being made by the superior English method (**Gazette**, May 1872)

Much of the credit for the development of ginger ale has been given to Dr. Cantrell of Belfast, Ireland, who began his mid-nineteenth century activities under the partnership of Cantrell and Cochrane (Riley 1958: 115). Ginger ale reportedly was developed as a substitute for brewed ginger beer for the British troops in India, but a United States market quickly followed. Ginger ale was found to be much easier to produce and less cloudy than ginger beer. As the popularity of ginger ale spread, several competitors to Cantrell of British origin found a large and thirsty market in the United States, and by 1875 the United States market was of sufficient size that many domestic companies were already producing it. In fact, John Matthews & Co., one of the nation's largest dealers in soda water equipment, devoted more space in his wholesale bottling catalogue to ginger ale than to any other flavored soda water (see Figure 8.05).

Nine specimens were found which originated from the Irish firm of Cantrell & Cochrane. The Belfast-based company was a pioneer in the specialized field of ginger ale manufacture, and success soon prompted an



GINGER ALE.

This interesting and classically sparkling beverage has lately assumed large proportions, and is the present main article of the popular bottles and many foreign countries.

The preparation of this beverage is extremely simple, except being first prepared and then carbonated with Soda Water, after bottling.

MATTHEWS' AERATED WATER, for making Ginger Ale, produces the most delicious and refreshing beverage.

One quart of the former, combined with three of the latter, makes

One quart	\$1.15
One gallon	4.25
One case	42.00

For the purpose of this advertisement, we have selected the most desirable and most popular of the various styles of bottles, and have them on hand for sale.

Figure 8.06: English Ginger Ale in 1901. . . still came in round-bottomed bottles of the type recovered at the N-5 site, as this advertisement in a playbill from Morosco's Grand Opera House testifies. The round bottom became a widely imitated prototype identified with this beverage. (McGuire Collection)

Figure 8.07: Cassin & Co's Bottled Ginger Ale. . . in the English-style round-bottom bottles. This ad appeared in San Francisco's *Wine Dealer Gazette* for May 1872, a date contemporaneous with many of the brands of soda water bottles retrieved at N-5. (McGuire Collection)

Figure 8.05: John Matthews' 1875 Catalog. . . documents the popularity of ginger ale, as well as the round-bottomed bottle type in which it was marketed. Many companies bottled ginger ale in variants of this basic form, often with their firm names embossed on the glass. (McGuire Collection)

A Delicious Beverage for all Occasions
Luncheon, Dinner, Supper



Ross's Royal Belfast Ginger Ale . . .

Connoisseurs pronounce it
"The Best Imported!"

SHERWOOD & SHERWOOD

IMPORTERS

212-214 MARKET STREET

LEMONADE,

GINGER ALE,

DOUBLE SODA WATER.



DEPOT, . . 523 FRONT ST.

additional plant in Dublin. By the late 1860s this firm had begun to tap the large United States market (Riley 1958: 120), and their familiar round-bottom bottles of ginger ale were shipped to this country in tremendous quantity (see Figure 8.05 for bottle type). A competitor of nearly equal note was Ross's Royal Belfast Ginger Ale. Found with equal profusion in this country, the number of its bottles attests to the popularity of the article. Figure 8.06 depicts a bottle of Ross's in a 1901 advertisement placed by Sherwood & Sherwood, a major San Francisco importer of British goods.

The N-5 site produced a bottle marked "THE BELFAST SODA WATER AND GINGER ALE, Co. SAN FRANCISCO CAL." Its resemblance to the English round-bottom ginger ale bottle is rather remote, although the company's first bottles appeared very similar to the round-bottom style but with a flat base. Later the neck and top were modified for use with Hutchinson's patent wire closure, as the example from N-5.

The beginnings of the Belfast Soda Water and Ginger Ale Company are somewhat shrouded in mystery. First listed in the 1878 San Francisco City Directory at 1717 Market Street with Frank S. Waldo as proprietor, in the 1879 directory Belfast was listed with Thomas J. Pyne as proprietor, and Frank S. Waldo appeared as proprietor of the Empire Soda Works at 1721 Market Street. Pyne continued as proprietor of the Belfast Ginger Ale Company at the rear of 145 Valencia Street, but also maintained the Pacific Mineral Water Company at 145 Valencia Street. Apparently the Pacific Mineral Water Company had been producing Belfast Ginger Ale since 1877, which is evidenced by the label registered on November 5, 1877, the year of the company's inception.

The earliest Belfast bottle produced was marked "THE BELFAST GINGER ALE Co. SAN FRANCISCO CAL.", but later items were soon changed to read "THE BELFAST SODA WATER AND GINGER ALE Co. SAN FRANCISCO CAL." This change appears to have occurred prior to 1884, as suggested by the embossing style.

PRODUCTION, BOTTLING, AND BOTTLES

Soda Water Production

As described above, both soda and mineral waters may be broadly defined as carbonated water, adulterated either naturally or artificially with organic or inorganic substances to impart a particular flavor or desirable physical effect. While the use of such waters in their natural form can be traced back through the millennium, it was not until the late eighteenth century that imitations of the salts of famous springs and concoctions of new formulations were introduced to the palate. One of the most popular formulas was created by simply adding water to soda. Flavored soda water as we know it today is the evolutionary result of attempts to mask the slightly disagreeable taste of soda in water. Eventually, the soda, along with its claim to medicinal powers, was omitted, and the flavored carbonated water began to be consumed purely for its refreshment qualities.

The concept of bringing natural spring water to the consumer's doorstep rather than having the consumer travel to the spring apparently began in the eighteenth century. McKearin and Wilson (1978: 233) note that the 1902 *Encyclopedia Britannica* mentioned the bottling during the 1700s of Spaw, Pyrmont, Scarborough, and other waters, and also that American merchants were importing Seltzer and Pyrmont waters by the end of the same century. Waters from various domestic springs were also known to be bottled during this same period, although details of bottling are sketchy. Not until 1823, when Lynch and Clarke commenced the bottling of Congress Spring water in Saratoga, New York, does the historical development of bottled water become recorded history. In 1827 one firm in Hartford, Connecticut, advertised : "1 to 5,000 Bottles of Congress Spring Water, put up at the Springs, in a superior manner at the proper season when the water was most pure, may be had at 21 cents a bottle, \$2.25 per dozen or \$4.25 per box, containing 2 dozen" (Ibid.: 234).

In 1865, the Congress and Empire Spring Company was formed when the Empire Spring Company purchased the controlling interest in Congress Spring (Puckhaber 1976: 22). In 1867 the company then purchased the Granger Glass Works of Mt. Pleasant, New York, and moved the operation

to Saratoga, New York, where the bottle type found at N-5 was produced until 1878 (see Appendix B). In that year Congress and Empire Spring Company claimed to be the largest mineral water bottling company in the world, selling over 1,000,000 bottles (Ibid.: 24).

Since this company controlled two of the best known mineral springs in the world, each with a distinctive taste, bottles were marked to designate which spring water they contained. If they held Congress Spring water, the bottle was so indicated by a large block letter "C" on one side and the words "CONGRESS WATER" on the other side. If the bottle contained Empire Spring water, it was marked with a large block letter "E" and "EMPIRE WATER" on the opposite side.

Morphologically, mineral water bottles from the Saratoga springs region were distinct, but they carried with them such a prestigious reputation that they were emulated throughout the United States between 1860 and 1885. The first Saratoga-style bottles with the distinctive mouths were produced in 1823 for Congress Spring water, and the style endured until about 1889 (Ibid.: 2).

Soda Water Bottling and Bottles

The production of manufactured soda water in bottles apparently became popular in the early 1840s, and numerous advertisements in newspapers and directories of the major eastern cities attest to their use at this time. Riley notes that the 1850 census tabulated a total of 64 bottlers of soda and mineral water for the entire United States, and by 1870 a total of 387 were counted (Riley 1958: 123).

The production and bottling of soda water followed an evolutionary course that was only beginning to reach sophisticated levels by the 1870s. With the introduction of the bottling table in the 1850s, mechanical devices replaced the skilled "knee bottler" and opened the door for greater productivity. A typical bottling table was one used by John Matthews of New York City, and described by Riley:

In the Matthews machine, for example, the bottle was placed directly under the mouth of the bottling cylinder, or filling head, the latter having a valve and pipe connection with the fountain reservoir. Pressure on the foot treadle lowered the cylinder to a tight connection on the bottle top. Then, a wet cork having been placed in the top of the bottling cylinder,

downward movement of its hand lever lowered the corking piston to push the cork into the cylinder, to a point just above the bottle. The water valve then being opened, the bottle was filled: a vent valve in the filling head was provided to relieve the pressure. When the contents reached proper height, the valve was closed, the cork pushed into the bottle by pressure on the hand lever, and the filling head raised by release of the foot treadle. However, continued pressure on the hand lever was necessary to keep the piston in contact with the cork and hold it in the bottle until it was tied on. More frequently the tying was a separate operation, in which special tongs were used to hold the cork on the bottle while it was removed to the tier (1958: 83).

Techniques for production, flavoring, and bottling of soda water were rapidly dissiminated, with European and American producers turning out "how-to" manuals and books on the machinery available (Hermann-Lachapelle and Golover 1967; Hager 1870).

Attempts by scientists to reproduce the effervescence found in some natural spring waters began in the late eighteenth century. Some entrepreneurs successfully used carbonated water, but laboratory production of carbon dioxide gas was the subject of considerable continued research, and the results were never fully satisfactory until 1879 when Dr. W. Raydt of Hanover, Germany, produced nearly 100 pounds of liquid CO_2 (Riley 1958: 90). Prior to this date, San Francisco soda water manufacturers relied on the system of generating CO_2 gas by combining marble dust with sulphuric or nitric acid and piping the gas from the generating tank into another tank which held the water for charging.

Another development crucial to soda production and bottling, the quest for the perfect bottle closure, is evidenced by the hundreds of patents filed for every conceivable method of stoppling a bottle. The cork, however, remained the undisputed favorite at least until the 1870s. Wire, string, or other ligatures were used to secure the cork which normally departed with haste upon severing of the tie. This action usually resulted in a resounding pop which, incidentally, became so strongly associated with soda water that to this day nearly everyone knows of "soda pop."

The first successful application of a patented closure on a large scale in the industry was achieved by Henry W. Putnam of New York City. His wire clamp, patented in 1859, fastened around the base of the top and swung clear of the top to allow placement and removal of the cork (see

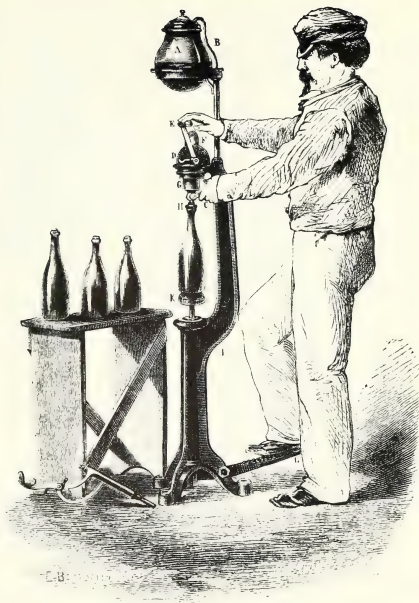
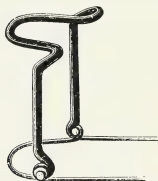


Figure 8.08: Techniques for Producing and Bottling Soda Water. . . changed rapidly during the late nineteenth century because of continuing innovations in equipment and stoppering techniques. In the U.S., firms such as Matthews' Apparatus Company in New York manufactured ware for the soda business. In France, Lachapelle and Glover's *Des Boissons Gaseuses*, from which this illustration of a flavoring syrup pump is taken, presented the state of the art in 1867. (Lachapelle & Glover 1867).

Figure 8.09: Henry Putnam's Cork Fastener, Patented in 1859. . . was wired on the neck of the bottle just below the top. It swung free to allow easy placement and removal of the cork. (John Matthews' 1875 Catalog, McGuire Collection)



WIRE CORK FASTENERS.

Putnam's Patent, per gross \$1.50
Six Sizes ; No. 4 is the most used.

Figure 8.09). This method eliminated the practice of hand-tying each cork in place.

A complete replacement of the use of corks was attempted by John Matthews of New York City who began experimenting with various closing devices about 1861 and patented his gravitating stopper on August 13, 1867. This device was touted by Matthews as an economical system since all parts were re-usable, unlike corks which could be used only once and which had to be laboriously tied down by hand, thereby accruing substantial cumulative expense. Matthews' invention consisted of a rubber-tipped glass plug which was held in place by gaseous pressure of the carbonated contents (see Figure 8.10). The bottle was opened simply by pushing down on the glass plug which protruded above the top of the bottle, thus breaking the seal. The stopper would then sink through the beverage to the bottom of the bottle where it could be easily replaced at the next refilling of the bottle by turning it upside down and letting it "gravitate" to its proper closure position.

The Matthews stopper gained considerable popularity during the 1870s and 1880s, although its use was restricted to the geographic areas of exclusive franchises. Matthews claimed 3,000,000 of his gravitating stopper bottles were in use at 150 different establishments (Matthews 1875:38). These operations paid an initial fee equal to 2 cents per inhabitant of the area to be served and rented the bottling machine, which was necessary for filling the special bottles, for \$25 per year. His bottles sold at \$7 per gross including personalized lettering, and the rubber-tipped pressed glass stoppers cost 4.5 cents each.

Matthews sold other goods and equipment for the manufacture of soda water including the necessary marble dust and sulphuric acid for creating carbonation. He also stocked flavored essences and syrups which made possible a large, if not a larger, variety of soft drinks than are marketed today. The flavors included ginger ale, lemon, sarsaparilla, vanilla, strawberry, raspberry, pineapple, pear, apple, peach, nectar, banana, cognac, orange, orange flower, Jamaica ginger, and root beer (Ibid.:106). For those bottlers who wished to cater to consumers of mineral water, Matthews' Mineral Water Salts were packaged in compounds similar to those of the great mineral springs of Kissingen, Vichy, Carlsbad, Selters, and Congress (Ibid.:92).

Similar bottling processes abounded, but it was Charles G. Hutchinson of Chicago whose patent of April 8, 1879, finally became an industry standard. His device was an internal stopper that consisted of a rubber disk attached to a looped wire stem which provided tension on the interior of the bottle neck (see Figure 8.11). The upper part of the loop was large enough to keep the stopper from dropping to the bottom of the bottle, and when the bottle was to be closed, an upward tug on the wire loop set the rubber disk firmly across the internal surface of the neck orifice at the shoulder (see Figure 8.12).

The widespread popularity of Hutchinson's stopper is probably a tribute to its simplicity and low cost. The stoppers sold for \$2.00 to \$2.50 per gross, and by about 1890 the Hutchinson firm advertised that more than 3,000 customers were using the stopper, mostly for soda bottles (Riley 1958:97).

The Hutchinson-type stopper necessitated a change in bottle style to one with a shorter neck. Accordingly, a sharp-shouldered, short-necked bottle was developed which, by association, took on the name Hutchinson Bottle. This bottle style persisted until about 1915 when William Painter's crown cap became the universal American mode of bottle closure and the bottle neck length no longer was a matter of concern.

DOMESTIC MINERAL WATER: BOTTLING AT THE NAPA SODA SPRINGS

Throughout the 1870s and '80s, California's Napa Soda Springs epitomized Victorian ideals of salubrity and communion with nature in a properly refined, yet bucolic setting. Mineral waters--whether bathed in, imbibed, or both--were believed by the Victorians to have great restorative value (Levy 1947:67-68). Dr. MacPherson, for instance, a perceptive and prolific commentator on mineral waters and baths, extolled the virtues of mineralized waters, reminding his readers, too, that the sense of well-being obtained by a visit to a spa had other contributing factors:

An individual who goes from home to drink them (mineral waters) finds himself in a different climate, with possibly a considerable change in altitude. His diet is necessarily altered, and his usual home drinks are given up. There is change in the hours of going to bed and rising. He is relieved from the routine of usual duties, and thrown into new and probably cheerful society. He takes more exercise than when at home, and is more in the open air, and this probably at the best season of the year. . . (MacPherson and Leeds 1902:432).

This change in routine was certainly the case for health seekers who left San Francisco for a stay at the famous Napa Soda Springs, from which came the bottled water famous all over Northern California.

Situated on a mountainside about 6 miles northeast of the city of Napa and about 50 miles from San Francisco, the springs were reached by traveling to Napa either by rail or by boat, and thence the last 6 miles via stage coach. The view from the resort's trails extended to Mount Tamalpais and to the Golden Gate. The 27 assorted springs, hot and cold, poured forth a daily flow of 4,000 gallons (Napa Soda Springs, n.d.). In its heyday in the 1870s and '80s under the ownership of Colonel John P. Jackson, Napa Soda Springs boasted a large stone lodge, cabins, and many splendid bathing facilities (see Figure 8.13). A substantial part of the springs' success, however, was the result of its bottling industry, which filled 400-dozen bottles a day by the 1880s, much of it for transport to San Francisco (Slocum and Bowen 1881).

Water from the Napa Soda springs, as the name "soda" implies, is alkaline. Throughout the 1870s and 1880s, numerous analyses of its chemical properties were published in newspapers, guidebooks, and publicity brochures

for the resort. A table published in the **Alta** for July 23, 1873, compared California mineral waters with those of the famous European spas. The following breakdown of its mineral constituents resulted (with New Almaden's content presented for comparison):

Grains per gallon	Napa Soda Springs	New Almaden
Chloride of Sodium	5.2	33.6
Bicarb of Soda	13.1	201.2
Carbonate of Magnesia	26.1	--
Carbonated Lime	10.8	--

These figures accord well with those presented by Hittell (1878) and Winslow Anderson (1890). The New Almaden springs, located near San Jose, produced a water which was also widely marketed in the Bay Area. With far less sodium chloride and bicarbonate of soda, the Napa water was far less "soda" than New Almaden's and hence Napa soda's wide popularity as a mixer in drinks (Markota and Markota 1972:43), and its adaptability to combination with flavorings such as lemon. Writing of the Napa springs in the **San Francisco Post**, Hittell slipped in an obliging endorsement on behalf of the paper's owner, Colonel John P. Jackson, who also owned the resort at the springs, noting that "I regard Napa Soda as the best chalybeate (iron-bearing) water known."

History of Napa Soda Springs

The springs at Napa have been appreciated throughout history, and the "Indian relics found here in abundance" indicate that the spot was well used by aborigines (Slocum, Bowen & Co 1881:300). How rapidly the fame of the springs spread after the arrival of the Forty-niners may be judged by references dating from the 1850s. A history of Napa County claims that the springs were "discovered" in 1853 and that the first bottled water from them was sent to San Francisco in 1856 (Paulson 1874:78). An item in the **Report of the Industrial Exhibition of the Mechanics' Institute**, held in San Francisco in September 1857, observes: "J. R. Loucks, Napa. A case of soda water. This was from the famed soda springs in Napa Co., and the excellence of the water is too well known to make commendation necessary."

Rival claimants soon came into conflict over title to the springs, and between the 1850s and 1872, the ownership of the Napa Soda Springs was tied up in a series of bitter court disputes as heated and agitated as the waters that made the springs famous. The litigation was as complicated as it was long, with numerous rulings by local courts followed by appeals. In 1863 or 1864, the matter was placed in the hands of the Register and Receiver of the United States for the San Francisco Land District. Ultimately, the United States Secretary of the Interior made a final ruling, which in 1872 allowed Colonel John P. Jackson of San Francisco to purchase the site with a full and clear title (Slocum, Bowen & Co 1881:292-295).

Between 1860 and 1872, the disputed owner of the site was John Henry Wood. Born in New York state in 1818, Wood arrived in California during the Gold Rush in search of a healthful climate. In 1860, after experiencing the curative powers of the Napa springs, Wood laid claim to the property, thus becoming embroiled in the ownership dispute. Able, nonetheless, to maintain control over the springs, he began improving the property around them. In 1861 it is reported that he received an annual profit of \$12,000 from the springs and land (Phelps 1881:31-32).

Wood apparently began bottling Napa Soda in 1861 or 1862 (Markota and Markota 1972:67; Phelps 1881:31-32). Soda water bottles bearing the name "Napa Soda", often together with the names of the owners or the commissioned sales agent for different cities, were manufactured and used for about 40 years. At least half a dozen different names and phrases have been recorded on Napa Soda bottles to date. The time periods represented by the various embossed labels can be reconstructed only from a combination of clues from city directories and tell-tale technological features such as the type of stopper employed. The Markotas (1972) have compiled many of these variant labels into a chronology.

Bottles from the period of Wood's ownership may bear the label NAPA SODA, with the words NATURAL/MINERAL WATER on the reverse. Some of these bear a "W" on the bottom, perhaps standing for "Wood's" (Markota and Markota 1972:67). Between 1868 and 1873 or so, aqua and dark blue bottles with the unmistakable advertisement "WOOD'S/ NAPA/SODA" were also common (Ibid.:96).

In 1872, Wood lost possession of the Napa Soda Springs to Colonel Jackson after the final ruling of the Secretary of the Interior. For a short

period of overlap, "Wood" bottles were no doubt filled with water from the springs now owned by Colonel Jackson, but before long bottles bearing the colonel's name appeared. According to the Markotas, Phil Caduc, the Sacramento Agent for Napa Soda since 1861, was forced to replace all his old Napa Soda bottles with new ones bearing his own name under orders from Colonel Jackson (1972:65). Assumedly, this was part of a campaign to eliminate old bottles bearings Wood's label.

Colonel Jackson was a noted figure in Northern California life during the 1870s and 1880s. Born in Ohio in 1833, he became a lawyer at age 21. During the Civil War he fought on the Union Side, attaining the rank by which he was later known. Following the war he traveled to Europe to negotiate the sale of bonds for the California Pacific Railroad Company. After returning and settling in San Francisco, he embarked on numerous and various business interests. He was president of the Stockton and Copperopolis Railroad and served in an advisory capacity on the boards of several other railroads. In 1875 he bought the **San Francisco Post** newspaper, and he also owned the **Wasp**, an anti-Chinese weekly. Under President Harrison, he served for a time as the U.S. Treasurer at San Francisco. Oddly enough, two standard biographies listing Jackson's accomplishments-- Phelps' **Contemporary Biography of California's Representative Men** (1881) and Shuck's **History of the Bar and Bench of California** (1909) fail to mention his ownership of the soda springs at Napa. Perhaps this reflects the unfavorable publicity regarding the protracted legal struggle over their ownership, or merely the lower status of owning a resort. In any case, soda bottled under the Jackson name continued to be sold (Markota and Markota 1972:43-46) after the colonel's death in 1901.



Figure 8.13: The Pagoda at Jackson's Napa Soda Spring c. 1880. . Visitors to the springs contemplated the Napa Valley in ornate Victorian surroundings. The Pagoda Spring was only one of several sources of soda water on the property. Not far away, a bottling works erected over another spring prepared hundreds of bottles of mineral water each day for shipment to Northern California towns and cities. (Bancroft Library)

Figure 8.14: Bay City Soda Water Company Bottle c. 1870-1874. . This popular bottle (front and back view) from the San Francisco company is seven inches high. (McGuire Collection)



DOMESTIC SODA WATER: SAN FRANCISCO'S BAY CITY AND CRYSTAL SODA BOTTLERS

San Francisco's Bay City Soda Water Company was incorporated under California law on December 9, 1870, with James McKewen as president. McKewen brought with him some 14 years experience in the business. He had initiated his venture into the soda water business in partnership with George C. Thompson in San Francisco in 1856, and later had been proprietor of California Soda Works at 190 Stevenson Street. Bay City Soda Water Company opened its doors at 89 Stevenson Street, one block from McKewen's old stand and not far from his residence at 186 Stevenson.

The company devised a distinctive trademark for its bottles, which included a large five-point star, and registered the mark with the California Secretary of State on April 27, 1872. Its bottles, with extremely rare exceptions, were all manufactured of a bright blue glass which became something of a trade mark in itself (see Figure 8.14). Based on the style of lettering, the manufacture of these bottles may be attributed to either the San Francisco Glass Works or the Pacific Glass Works. A similar style of lettering is found on two other California soda water bottles--California Soda Works and Empire Soda Works of Vallejo--and it seems to be found nowhere else in the United States.

About 1874, Bay City Soda Water Company began phasing out its familiar blue bottle after a decision to use a bottle accommodating Matthew's gravitating stopper. It is possible, even probable, that Bay City Soda Water Company purchased the bottle mold from John Matthews & Co., and had its bottles blown at one of the two local glass works, thereby eliminating the risk and expense of shipping the glass containers from the East Coast. Most of Bay City Soda Water Company's Matthews-style bottles bear color and embossing characteristics of the local glass works.

Bay City Soda Water Company continued to use the Matthews-type bottle for a number of years, probably into the late 1880s. Later, it adopted the Hutchinson-style bottle.

One of the most distinctive and unusual soda water bottles found at the N-5 site was produced for the Crystal Soda Water Company (see Figure 8.15). Founded about 1873 by Sylvester R. Simmons, the company

utilized a concept patented by a pioneer San Francisco soda water dealer, Asher S. Taylor, who himself never used this sytem for his own bottles (See Figure 8.16). Taylor had noted that fewer soda bottles were routinely returned than were distributed, a situation suggesting that a substantial number of bottles were pirated and refilled by competitors. Accordingly, Taylor invented a capper that required an uneven or unique configuration on the top rim of the bottle which would render the bottle useless to anyone who filled his bottles with standard machinery. Only the owner of the special bottle would have the bottling equipment keyed to the bottle's special rim configuration (U.S. Patent Office 1872).

Taylor's 1872 patent provides for considerable latitude in mechanical engineering. This is reflected in the actual application of his patent to the Crystal Soda Water Company bottles where the top of the lip is flat and can thus be accommodated by most standard bottling machines. The most logical clue to Taylor's patent concept may be found on Crystal bottle specimens made only in aqua-colored glass. These specimens have a 3-millimeter diameter hole pushed through the top at an angle of approximately 49 degrees from vertical (see Figure 8.17), and it must be assumed that this hole embodies the essence of Taylor's patent. This hole would provide venting as the bottle was being filled, thereby eliminating the need for venting of the bottle filling head. While other bottlers may have nevertheless used these bottles, the hole would have generated a considerable nuisance.

The Crystal Soda Water Company bottles produced in blue glass do not have the hole, and it may be speculated that this represents an abandonment of the patented process. Instead, the blue-colored glass would make a simpler visual identification possible. Later bottles incorporated the standard "blob" top characteristic of California soda and mineral bottles, indicating the total abandonment of Taylor's patented concept (see Figure 8.18).

CRYSTAL SODA WATER CO.

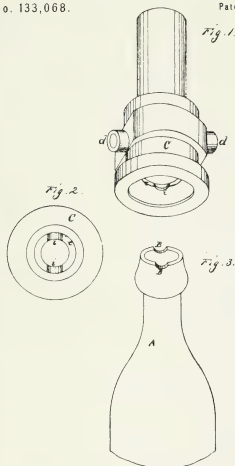
SYLVESTER R. SIMMONS, PROPRIETOR,
N. E. CORNER STOCKTON AND UNION STS.

Figure 8.15: Crystal Soda Water Bottle, 1873-1886. . .The patent date imprinted on the bottle back refers to the hole in the bottle lip which prevented refilling by competitors (see Figures 8.16 and 8.17). The bottle is seven inches in height. (McGuire Collection)

Figure 8.18: Advertisement for Crystal Soda Water. . .appeared in Langley's 1874 San Francisco Directory. For unknown reasons, ads for soda water rarely appeared in directories and newspapers of the period.



A. S. TAYLOR.
Improvement in Bottling Apparatus.
No. 133,068. Patented Nov. 12, 1872.



Witnesses

J. L. Bone
J. M. Richardson

Inventor

Asher S. Taylor
per Dewey & Co
Attys



Figure 8.16: Patent Drawing of Asher Taylor's Bottling Apparatus. . shows the special bottle lip which prevented refilling except through use of the patented bottling device. A pierced rather than a notched lip (perhaps for ease of drinking out of the bottle) was adopted by the Crystal Soda Company to prevent unauthorized refilling of its bottles. (McGuire Collection)

Figure 8.17: Detail of Mouth of Crystal Soda Bottle. . exhibits the angled hole (at right) which necessitated the use of Taylor's patented apparatus to refill the container. (McGuire Collection)

WHAT THE SODA BOTTLES TELL ABOUT THE BAY REGION

Considered as a whole, the soda and mineral bottles collected from N-5 prompt reflection on several aspects of the soda water industry of the 1870s and '80s and on landfill dumping in San Francisco. While an exhaustive treatment of either one of these aspects is beyond the scope of this paper, some directions for future research are suggested, as well as certain areas of uncertainty in present historical and archaeological knowledge.

Although sodas--along with beers, whiskeys, and patent medicines--are among the most widely collected type of bottle, and although bottle collectors have dated (with varying degrees of accuracy) the bottles of different soda water companies, a coherent, overall picture of western soda bottling remains to be written. Such a description would require consideration of the constantly changing practices of bottling technology, the economics of the business, and the role of soda water in popular culture. Riley's **History of the American Soft Drink Industry** (1958) provides such an overview for the entire United States, but taking such a wide scope, it offers little detailed analysis directly applicable to San Francisco or California. The Markotas' book (1972), on the other hand, is aimed at collectors. Covering a wide range of western soda bottles, the work focuses on the monetary value of bottle types and on their dates of production, the latter gleaned largely from city directories. While the material presented on some of the soda water firms sometimes contains prices or occasionally synthesizes findings, it serves primarily as a catalog and index to bottle types. The recently issued report on bottles found at Old Sacramento (Schulz et al. 1980) furnishes the closest approximation to date of an overview of the busy soda water industry in Northern California, with detailed information on a large number of producers and agents. After presenting a brief synopsis of soda water manufacturing practices, **Old Sacramento** illustrates the evolution of soda bottle shapes and then turns to a company-by-company description of bottle types, similar to the Markotas' treatment.

In the course of research on the N-5 bottles, enough material was nevertheless gathered to suggest a number of distinguishing features of the soda water business. If still scattered and inconclusive, these scraps of

data may point the way to a greater understanding of the distribution of soda water bottles frequently seen in archaeological sites. Much more remains to be done, of course, both in terms of historical inquiry and comparative archaeological research, but the points outlined below seem to bear further consideration.

Soda Water Bottlers: Nature of the Industry

Even a hasty review of **The Bottles of Old Sacramento** or **Western Blob Top Sodas** makes it clear that the soda water business was well suited to the restless, entrepreneurial spirit of the Gold Rush and its aftermath. Writing of the industry, Hittell noted that:

Requiring no extensive buildings (a tent has been used), nor very elaborate machinery, the manufacture has been co-existent with the miner's camp, and the production only limited by the demand, though it is doubtful, considering the high prices of the days of mining excitement and the present competition, if the business of to-day has become lucrative in proportion to the increase of population (1882:571-572).

Such an industry required little in the way of initial capital investment in comparison with many other sorts of endeavors, could be rapidly undertaken, and in California's hot climate was assured of a ready market.

These features of the soda business made it attractive for many would-be entrepreneurs. Phil Caduc, agent for Jackson's Napa Soda in Sacramento, was a restless immigrant to California, whose numerous and complex business ventures involved him in the storeship business in San Francisco, in ice vending in the Central Valley, and in multifold business deals in the soda business (Schultz et al. 1980:126-129). In San Francisco, John Gerdes (eight N-5 bottles bear the name of his company) is listed in the 1860s as a driver for the California Soda Works, but by 1873 he appears as the owner of the San Francisco Soda Works. Henry Ficken, it would seem, was both a driver for the Eureka Soda Works at 723 Turk Street in San Francisco and the proprietor of the California Soda Works, located at 723 Turk, rear (Markota and Markota 1972:9). Such stories could be multiplied several fold (Markota and Markota 1972: passim; Schulz et al. 1980: passim).

The relative openness of opportunity in the soda water business resulted in several other readily apparent characteristics. One of these was a markedly short tenure for most soda water manufacturing businesses. Between 1870 and 1880 in San Francisco, for example, there were at any one time about 10 to 12 firms listed as Soda Water Manufacturers in various editions of Langley's **City Directory**, with the maximum number being 13 and the minimum 6. Of the 10 firms shown in the 1880 **Directory**, only 4 are firms whose names appeared in the 1875 edition. The life span of many companies was from 2 to 5 years, as may be seen from Table 8.02 below.

As might be surmised with such short-lived, individually owned businesses, many were small operations. Hittell's comment, cited earlier, is bolstered by other fragmentary data. The 1887 Sanborn Map of San Francisco shows the San Francisco Soda Works, located on Francisco near Mason, to be housed in a building 60 feet long with the standard 20-foot front. Other soda manufacturers were sometimes located in primarily residential neighborhoods, as was the case with the California Soda Works. Conversely, it appears that the larger firms were more likely to be long lived. Bay City Soda Water Co., a corporation rather than an individual proprietorship, was in business for over 40 years (Markota and Markota 1972:4), while P. G. Somps Steam Soda Works on Clementina Street, which burned in 1906, was producing 150 dozen bottles a day by 1880 (Hittell 1882:571).

Size and Prices

Glass soda and mineral water bottles quickly assumed the shape and characteristics which distinguished the type until the recent advent of the non-refillable container. They were commonly straight-sided, with rounded shoulder, short neck, and overall squat, heavy appearance. Heavy and made of very thick glass to withstand frequent handling and refilling, they were usually aqua in color but with variants in brown, green or blues (see Markota and Markota 1972 *passim*). An embossed label identifying the brand was a distinguishing characteristic, and it often gave the address of the factory or distributor. This allows us to date them today through city directory listings. The label, or the reverse side of the bottle, was

TABLE 8.02

DISTRIBUTION OF SODA BOTTLES A N-5 BY COMPANY AND DATE OF PRODUCTION

Bay Area Company	Number of Specimens	Time Range for Production of Bottle Type ¹	Mean Year of Manufacture	Mean age in 1883
Bay City Type One ²	2	1870-1874	1872	11
Type Two ³	9	1874-1883	1879	4
Belfast	1	1884-1898 ⁴	1892	---
California	1	1878-1879	1878	5
Congress	1	1865-1878 ⁵	1871	12
Crystal	8	1873-1886	1879	4
Eastern	2	1877-1882	1879	4
Gerdes	8	1873-1877	1875	8
Jackson's Napa	3	1873-1885 ⁶	1879	4
Pacific Congress	4	1869-1880 ⁷	1874	9
Pioneer	2	1877-1885 ⁸	1881	2
C. A. Reiners	1	1875-1882	1878	3
Wood's Napa	1	1870-1872	1871	12
<hr/> 43			<hr/> 1876 ⁹	<hr/>

NOTES:

1. Unless otherwise noted, dates are based on business directory listings
2. Blue glass variety
3. Mathews style
4. Hutchinson style bottle. Does not include the earlier varieties which were not found at N-5.
5. Dates based on Puckhaber (1976).
6. Ending date from Markota and Markota (1972).
7. Ending date has been interpreted based on the latest variant of this bottle found.
8. Ending date is probable year of change to Hutchinson style bottle which was not found at N-5.
9. The Belfast bottle was not included because its occurrence is probably a later fortuitous deposition.

sometimes adorned by a symbol, such as the eagle and snake of Ficken's California Soda Works.

The standard bottle held eight ounces of liquid as determined by measuring the capacity of the bottles in the N-5 collection. (The only exception was a 16-ounce Congress Water specimen from the famous New York springs at Saratoga). With rare exceptions, it is this size that is possessed by collectors and encountered by historical archaeologists in the West (e.g. Schulz et al. 1980, *passim*).

Oddly, in spite of the widespread popularity of mineral and soda waters during the late nineteenth century, retail prices for a bottle of pop are difficult to document for several reasons. First is the fact that soda itself was not advertised in the city directories which listed the manufacturers. Likewise, newspapers did not carry ads for soda water, nor were sodas or minerals among the commodities listed in marketing journals such as **Commercial Herald and Market Review**. This probably reflects the small size and short lives of the firms involved (in contrast for example, with the extensive advertising conducted for nationally known brands of proprietary medicines during the same period (see Chapters 6 and 7).

Research on the question of retail prices included widespread queries to California bottle collectors, including Peck Markota, author of **Western Blob Top Sodas** (1972). Collectors commonly possess materials such as serving trays, bill heads or receipts, and advertisements which refer to the classes of bottles they collect. To our surprise, no printed evidence seems to exist which clearly documents the retail or "across the counter" price for soda water in the late nineteenth century.

Indirect evidence, however, suggests that the price of soda may have been around 10 cents. Using data contained in the 1860 and 1870 censuses Schulz et al. were able to calculate a **wholesale** price per bottle charged by three soda water firms in Sacramento. According to their figures, in 1860 Owen Casey's Eagle Soda Works reportedly saw a return of \$5000 on some 12,000 bottles produced. Since this yields an absurdly high unit cost of 42 cents per bottle, it may be assumed that a zero was dropped in a typographical error. With presumably 120,000 bottles being the correct production figure, the price becomes 4.2 cents per bottle. This figure is in accord with the census figures for the Rancich soda firm which gave a price of 4 cents per bottle (1980:129, 154). Using the 1870 census, the

researchers found that the price per bottle earned by Billings' soda firm was 4.5 cents per bottle (Ibid.: 123). Thus, the limited data adduced give a consistent indication of a wholesale cost of a little over 4 cents, with perhaps 5 cents being the actual price.

The census of 1880 in San Francisco, the most relevant to the bottles found at the N-5 site, included some data on soda water manufacturing. It showed that the eight listed firms employed some 27 hired hands, confirming our evaluation of soda production being a small-scale industry. However, because the census does not list the production in bottles, the possibility of making calculations similar to those performed for the Sacramento firms is obviated (U. S. Department of the Interior 1888).

Several miscellaneous items give some additional information on prices, but fail to end the quest for the cost of the eight-ounce bottle. A paper label from a New Almaden Vichy Water quart bottle dated 1869 reads: "PRICE: 12 Bottles, at the Depot, \$4.00--Returned Bottles, bought for 5 Cts a Piece." This brings the price to 33 cents a bottle for the quart size, or approximately 8-10 cents for an 8-ounce portion. A Cudworth and Company billhead dated December 4, 1855, records a sale of 10-dozen lemon soda waters and five-dozen sarsaparillas for a total of \$9.37, which divides to 62 1/2 cents a dozen, presumably a wholesale cost. Finally, it may be noted that an 1891 menu from the San Francisco Downtown Association, an exclusive businessmen's club, lists Appolinaris mineral water and "German Seltzer, jugs" at 25 cents a quart, with "plain soda" five cents.

Thus, the scanty data available are at best still indirect concerning the price consumers paid for a full bottle of Ficken's or Bay City soda water in the late 1870s, although a roughly 100 percent markup from wholesale to 10 cents retail seems likely. Researchers may yet solve this small mystery.

Soda Bottles as an Artifact Class

Certain characteristics stand out clearly when the N-5 soda bottles are examined as a corpus. Data on the full collection are arrayed in Table 8.02 above and Appendix B.

The collection represents a good cross-section of the soda and mineral water bottlers in the San Francisco region. Eleven different local brands

are present, including many of the main bottlers of the 1870s--Bay City, Belfast, and Jackson's Napa Soda. It is nonetheless noteworthy that the largest single number of bottles are from Bay City, reflecting the established position of the bottling company in the San Francisco market.

The time ranges appearing in Table 8.02 are for production of specific bottle types found at N-5. Crystal Soda, Napa Soda Springs, and other long-lived companies produced numerous bottle types during their lifespans, altering their bottle shapes as new stopper styles were adopted, or revising their embossed lettering to reflect changes in ownership of the company or the presence of a new sales agent for San Francisco, Sacramento, or Petaluma. Thus, while the Bay City Soda Water Company continued to produce soda water, the style of their bottles constantly evolved. The type recovered at N-5 can be pinpointed to production between 1865 and 1896.

Two conclusions are apparent when the data in Table 8.02 are considered. One is that the time period indicated by dating the bottle types corresponds very closely to the historically known time of deposition at N-5. The mean age of the bottle collection in 1883, considered as a whole, was 7 years. This figure would suggest strongly, even in the absence of historical evidence, a deposition date of the early 1880s for the N-5 fill.

The soda bottles may be dated to a remarkably compressed period of time. While soda bottles from the 1850s and 1860s are not uncommonly found in Northern California sites--aqua specimens of Cudworth bottles, for example, are described by the Markotas as "common" (1972:21)--none were present at N-5. Soda bottles were owned by the soda water manufacturers; many in fact bear the embossed lettering "THIS BOTTLE NEVER SOLD BY THE COMPANY" or its equivalent (Schulz et al. 1980:124; Markota and Markota 1972:45). Thus once a producer went out of business, or changed his style of bottle, the old bottle became useless unless he sold them as a lot to some other soda firm. What this suggests is that once a soda bottle type was no longer produced, it also rapidly went out of use, and soon found its way into trash. It may be hypothesized that collections of soda bottles recovered from dump sites will, in general, reflect a preponderance of types discontinued shortly before the time of

deposition. In this respect, the distribution of soda water bottles at any sizable site (we exclude, for example, individual privies where a single soda bottle might be deposited by accident) would be expected to differ from the distribution of single-use bottles, such as bitters. In the case of single-use bottles, models currently in use by the producer would be discarded, and there would be contemporaneity between when a bottle was produced and discarded. While perhaps not a major advance in scientific archaeology, consideration of the production-discard lag hypothesis in the case of soda bottles may enable a refinement of our current understanding of the nature of artifact deposits in landfill or other large-scale refuse deposits.

One other conclusion seems warranted on the basis of the soda and mineral water bottles found at N-5. If the assumption is correct that the cylindrical stoneware jugs discussed earlier represent table and still waters imported to San Francisco (rather than Schiedam gin), then the N-5 bottles testify to the fact that refuse in the dump fill included waste from well-to-do tables as well as from saloons and grocery stores where "nickel" bottles of soda pop were sold. This would suggest that the refuse encountered at N-5 was collected along a route, with garbage from diverse establishments finding its way into the same trash cart.

As we have tried to point out, although soda water bottles are commonly encountered in historical archaeological sites and by bottle collectors, we do not yet possess a clear, comprehensive picture of the significance of the bottles as an artifact class. Nor does there yet exist a clear view of the role of soda water business in the California economy of the late nineteenth century. Even the price of a bottle of "pop" in 1875 is not fully established. The work carried out at Old Sacramento has helped fill in some of the historical gaps. The discovery of the N-5 bottles will further our understanding of soda and mineral water bottles and point to directions for further research, particularly at historical sites in which controlled excavation is possible.

CERAMICS FROM CHINATOWN'S TABLES: AN HISTORICAL ARCHAEOLOGICAL APPROACH TO ETHNICITY

If there is anything the Chinese are serious about,
it is neither religion nor learning, but food.

Harriet Lane Levy

Until recently, historical and archaeological studies of ethnic minorities in the United States have neglected the day-to-day activities of workingclass people. In a recent article on Chinatown in Ventura, California, Roberta Greenwood points to this bias, noting that the historical literature fails to consider such basic subjects as the material culture of the city's former Chinese community. On this matter she carefully observes that:

books about Chinese ceramics have been oriented either to climax styles of archaeological periods and historical dynasties, or to ware manufactured specifically for export; in neither case do such studies illuminate the styles or technologies of the domestic or utilitarian items used by the workingclass Chinese (1980:113).

Attempting to controvert these longstanding oversights by shedding light on the daily domestic practices followed by the early members of a major West Coast Chinese community, the chapter which follows presents data and analysis of the Chinese ceramic ware found in a San Francisco dump site dating from the 1880s.

During the mid-1800s, Chinese laborers, peasants, and artisans began their mass exodus from the southern provinces of China to different parts of the world. The vast majority came to America as sojourners--temporary, transient workers who expected to return home after accumulating some wealth. Their time in the California goldfields, in frontier railroad workcamps, and in urban Chinatown sweatshops was to be short, for the

overseas Chinese in America, as Stanford Lyman perceptively points out, were strangers in a strange land: "They were in the host society but not of it. They had not belonged to the host society from the beginning, and they imported things--culture, ways of life, ideas--into it which it had not contained previously. . ." (1970:63).

The N-5 ceramics, all of which date from the late nineteenth century, amply demonstrate that the Chinese living in San Francisco also imported many items from their material culture as well. Furthermore, as sojourners and "outsiders," the predominately male Chinese workers, as Gunther Barth comments, "left little written record of their experience" (1964:7). Accordingly, Barth explains in the introduction to his account of their history:

Illiterate or poorly educated, their struggle permitted no leisure for reflection. Newspaper accounts furnished the major source for this history of indentured emigrants. The correspondence of missionaries as well as legislative and municipal records, diaries and journals, reminiscences and travelogues written by Western observers helped to place the countless bits of information in perspective (Ibid.).

Given that our understanding of the Chinese in California derives primarily from such secondary materials, the N-5 Chinese ceramics, which represent uniquely durable cultural artifacts of this voiceless group, assume added significance as a new primary source of information

Discarded as rubbish between 1880 and 1885, the N-5 Chinese ceramics consist overwhelmingly of food ware items. (The significance of this fact, crucial for an understanding of Chinese American acculturation, will be discussed shortly.) These ceramics, which were imported expressly from China, were in daily use by the Overseas Chinese in San Francisco. They were utilized either as containers in the packaging, storage, and shipping of food or as tableware in the serving and consumption of food. In the more than 560 vessels in the N-5 collection are examples of several types of Utilitarian Brown Ware (Jiàn Yǒu) food containers, including beverage bottles, spouted soy sauce jars, shouldered food jars, and huge straight-sided barrels, as well as a wide variety of porcelain cups, bowls, plates, spoons, teapots, and other items used for serving and eating food. In addition, the collection contains several non-food ceramic items such as opium pipe bowls, decorative temple tiles, candle holders, and incense

sandpots and a tripod which suggest activities related to leisure or ritual practices. However, the majority of the N-5 ceramic inventory offers the researcher information about traditional Chinese foodstuffs, styles of food preparation, and ethnic patterns of food consumption. Although some of San Francisco's wealthier Chinese doubtless possessed valuable classical Chinese antique porcelain ware, as depicted in the photograph of a merchant's wife (see Figure 9.01), the N-5 ceramics discussed in this chapter are chiefly the utilitarian pottery types used by the emigrant workingclass Chinese in their daily food preparation and consumption nearly a hundred years ago (see Figures 9.02 and 9.03).

Chinese ceramics comparable to those from the N-5 dump site have been recovered from a number of other historical archaeological sites in California and the western United States. These sites have been associated either with isolated nineteenth-century railroad workcamps, such as the one at Donner Pass where Chinese laborers were employed (Chace and Evans 1969), or with small enclaved Chinatowns in places like Ventura (Bente 1976; Chace 1976; Greenwood 1976, 1978, 1980), Old Sacramento (Praetzellis and Praetzellis 1979b), and Tucson, Arizona (Olsen 1978). Evans (1980) provides a useful comparative table enumerating vessel types from several of these sites. His conclusion that the Chinese artifacts from these sites can be divided into two main categories--those dealing with food and those concerned with leisure and the fantasy world of opium and entertainment--applies to the N-5 inventory of Chinese materials.

Compared to all other sites, however, the N-5 collection is the largest and most diverse. In number and kind, the N-5 ceramics reflect the greater size, abundance, and affluence of San Francisco's Chinatown and suggest the social differentiation existing between the dominant merchant and subordinate indentured laboring classes. Of course, the finding is not unexpected, since San Francisco has historically been the pivotal center of the Chinese American world from the beginning of Chinese emigration to this country. As the major port of entry and exit for Chinese labor, San Francisco has always maintained the highest concentration of Overseas Chinese in America. Furthermore, goods coming from the Orient which eventually reached Chinese workers in remote parts of the American West first landed in San Francisco before being distributed across the country. It is no wonder, then, that it was in San Francisco that the most

varied and abundant collection of discarded Chinese ceramics has been unearthed. Much of the significance of the N-5 collection lies in its diversity and extensiveness which makes it possible to establish a useful data base for typological analysis of comparable ceramics from other sites in the United States.

The N-5 ceramics are equally important, however, for what they can tell us about the structure, organization, and life style of the Chinese American community living in San Francisco during the nineteenth century. Fundamentally, the ceramics coalesce around the everyday activity of food use and dietary practices, and anthropology teaches that all cultural groups evolve elaborate social and symbolic complexes surrounding the production, distribution, processing, preparation and cooking, serving, and, finally, eating of food. Although food is a basic biological necessity for members of all human groups, cultures create distinct and varied techniques, ritual practices, observances, beliefs, and styles clustering around the manipulation of food much before it even reaches one's mouth. Indeed, the method we use to bring food to our mouths--fingers, chopsticks, or a fork--is a culturally determined phenomenon that carries symbolic meaning distinguishing members of one ethnic group from another. Even our food preferences are largely determined by our culture. What types of food we consume, how it is cooked and who prepares it, how food is served and what tableware is used, who eats together and who is excluded, what utensils are employed while eating, and the kinds of table manners expressed at meals form parts of the extremely rich symbolic universe surrounding dietary practices. In the United States, in fact, we tend to perceive different ethnic groups primarily in terms of what they eat; pizza, piroshkis, chow mein, and burritos each represent a different ethnic group. Like dress and language, then, food patterns establish ethnicity.

Much has been written about food practices of various cultures, so it will be sufficient here merely to observe that culturally determined food complexes and eating behavior function to (1) define ethnic boundaries, (2) preserve symbolic meaning for ethnic group members, and (3) indicate the degree of members' acculturation and social distancing from other ethnic groups.

Figure 9.01: A Chinese Lady of the 1900s. .Draped in splendid brocade, a young Chinese women--perhaps the wife of a wealthy merchant--sits patiently for her portrait. Adding to her rich costume are the antique Chinese porcelains--two vases and a covered bowl--included in the photograph. Ceramics of this fine quality were probably heirlooms carefully passed from generation to generation, unlike the common, everyday ceramics found at the N-5 dump site. (Bancroft Library)



Figure 9.02: Chinese Men Having Tea in Chinatown. .This photograph dating from the 1880s shows a group of Chinese men dressed in traditional garb drinking tea. On the table are teacups and other ceramic tableware items imported from mainland China which were in daily use among the Overseas Chinese in San Francisco. Also on the table is a small hand water pipe, and along the back wall hang Chinese musical instruments. (California Historical Society)



In a plural society, any changes or modifications in such practices usually reveal some degree of accommodation and assimilation of a distinct ethnic group into the life ways of the dominant social group. In a sense, then, food practices are a symbolic measure of acculturation.

That the Overseas Chinese in the nineteenth century assiduously clung to traditional food practices is amply attested to by the N-5 ceramics recovered from the dump site. These artifacts, which reflect a direct continuity with the mainland Chinese food complex, indicate both the internal Chinese tendency toward cultural conservatism and the external Anglo American threats of discrimination and exclusion which led to the segregation of the Chinese in workcamps and urban ghettos. Both factors militated against social acceptance and rapid acculturative change. This observation is borne out in the N-5 sample. Moreover, the fact that many of the same types of pottery ware may be purchased today in Chinatown suggests that the Chinese American community not only continues to preserve a strong sense of cultural identification with mainland Chinese traditions but also that many of the same forces of discrimination and ethnic segregation that isolated the Chinese in the past persist. This is what makes the N-5 Chinese ceramic collection valuable for understanding social process and ethnicity.

While a lengthy discussion of Chinese American assimilation is not feasible here, it is important to emphasize that the N-5 ceramics focus on an essential aspect of the life ways of the nineteenth-century Chinese community in San Francisco, revealing much about Chinese ethnic identity and indicating something about the pace of the acculturative process. No doubt, maintenance of traditional ethnic food practices served a positive function for the lonely, often embattled indentured laborers in reaffirming their group identity and loyalties through sharing a common meal and enjoying familiar foods and beverages. One of the few pleasures the Chinese workers had during their difficult experience as sojourners in a foreign land was the enjoyment of good, home-style food, cooked in the traditional manner and served in bowls and dishes exactly like those used in their native southern China. Familiar food stuffs and condiments, serving containers, and tableware all communicated a sense of shared meaning and belonging and must have played a vital social and psychological role in

reducing some of the stress accompanying a life of toil, hardship, and exploitation far from the security of family and kin. Regrettably, no first-hand written accounts document this; all we have are the ceramic vessels and pottery sherds to tell us this part of the story. Far from remaining silent, however, the presence of the ceramics clearly indicates the central role that the maintenance of traditional food practices had on reinforcing a common cultural identity so important to the survival and well-being of the Chinese emigrants in America. Adhering to traditional food practices, dietary patterns, and familiar styles of tableware not only reinforced a sense of ethnic solidarity but also psychologically protected and to a certain extent insulated the Overseas Chinese community from the brutality of racism and discrimination that they encountered in the "Land of the Golden Mountain". From the standpoint of Chinese ethnicity and the study of ethnic minority social structure, the perspective, "You are what you eat," is profoundly true.

In brief, this chapter presents a descriptive analysis of the N-5 Chinese ceramics in order to understand in more depth the nature of the Overseas Chinese community in nineteenth-century San Francisco. The chapter first presents relevant background on the social history of the Chinese in San Francisco and next discusses the different types of ceramic ware found at N-5. This latter section provides extensive material on ware styles and function for comparative use by other scholars researching the field of Overseas Chinese ceramics as well as for use by the Chinese American community. Finally, the chapter draws conclusions regarding its contributions to the historical archaeology of ethnicity and makes recommendations concerning future cultural resource management programs in urban ethnic neighborhoods.

STRANGERS IN A STRANGE LAND: THE CHINESE IN NINETEENTH CENTURY CALIFORNIA

During the mid-1800s dramatic events in both southern China and California laid the basis for the Chinese diaspora from the Orient to the New World. Ample historical documentation records early Chinese contact with the West through trade and European colonial adventurism leading eventually to the Opium Wars in 1839. Studies such as Coolidge (1909), Sandmeyer (1939), Chiu (1963), Barth (1964), Chinn (1969), Lyman (1961, 1970, 1974), and others have traced the history of why thousands of Chinese emigrants left their homes in search of new opportunities in foreign lands. From this material, a poignant picture of the lives of the Chinese sojourners emerges, and it is within this historical context that the N-5 ceramics must be placed in order to understand their relevance to the Chinese American experience of the last century.

Because our primary focus concerns the Chinese in San Francisco from their first arrival in the city around 1850 to the height of the anti-Chinese exclusion movement in the 1880s, we will briefly examine why the Chinese came to California and settled in San Francisco, what they did, how they lived, and why they were so heavily discriminated against as an ethnic group. Against this background, we discuss Chinese ethnicity and acculturation through an investigation of Chinese food practices and food ware, analyzing how such practices contributed to the maintenance of Chinese cultural identity, boundaries, and solidarity.

The coincidence of catastrophic events in China and the discovery of gold in California, as Lyman astutely points out, "supplied the expulsive and attractive elements that linked the Middle Kingdom (China) to the United States" (1970:67). The bulk of Chinese emigrants were Cantonese speakers from various districts in Kwangtung Province and neighboring regions surrounding the Pearl River delta in southern China (see Chinn 1969: 2-5 and Map 9.01). These provincial districts provided the basis for the early formation of the important hui kuan, or district associations, which played a crucial role in the social organization of the Overseas Chinese community in San Francisco. Chronic political instability had characterized the history of Kwangtung and nearby Fukien area since the

Manchu conquest in 1644, and linked to this tradition were severe overpopulation, agricultural failure, resource depletion, and natural disasters such as a calamitous flood in 1849. Under these acute stress conditions, internal unrest broke out against the ruling Manchu overlords in the Taiping Rebellion of 1851. External harassment from invading European colonial forces and Hakka-speaking peoples from the northwest aggravated the already serious civil strife which continued unabated for the next fourteen years. It is estimated that more than 30 million deaths resulted from this conflict, and countless numbers of people were abruptly uprooted from their homes and villages. Many fled the violence in the rural areas by going to the coastal ports of Canton, Hong Kong, and Macao where they hoped to find work to support their families according to traditional Confucian cultural ideals and, possibly, also to find passage out of China until conditions returned to normal. Some peasants, artisans, and laborers emigrated on to workcamps in Malasia and other parts of Southeast Asia.

It was during the height of this period of massive social, political, and economic upheaval that word of the discovery of gold in California reached Canton and Southeast Asia. This event simply added a new direction and shape to existing patterns of Chinese labor migration.

Most of the Chinese emigrants left home as indentured laborers under some form of contract often referred to as the "credit-ticket" system. In this way, as Barth describes, workers obtained passage to any place where labor was needed "from Chinese merchants who were reimbursed by relatives of the travelers or by their future employers. In return the newcomers worked for whoever extended the credit until the debt was paid" (1964:51). Unfortunately, this labor contract system frequently camouflaged what Barth calls a system of "debt bondage that turned indentured emigrants into slaves of their countrymen who ruled through influences unfamiliar to outside observers" (Ibid.). Barth, whose study is appropriately entitled **Bitter Strength**, exposes the credit-ticket system in the following passage:

While the credit system was the dominant mode of traveling from Hong Kong to San Francisco, the passage was made at times under arrangements similar to the thinly veiled slave trade of the coolie system. The credit-ticket system, by which the passage money was advanced to laborers in Chinese ports and repaid out of their earnings in California, became



Map 9.01: Map of Districts Surrounding Mouth of Pearl River in China. . This area was the home of most Chinese emigrants to the United States prior to 1949. (Chinn 1969)

partly a disguised slave trade, managed chiefly by Chinese crimps and compradores who lured artisans, peasants, and laborers into barracoons and sold them to ticket agents. At the Chinese ports and at San Francisco they were kept in confinement, watched, and terrorized by the agents of the Chinese societies who acted in the creditors' interest. On a single day in 1854, within twenty-four hours, eight hundred and forty laborers, consigned to the Chinese companies of San Francisco, arrived at the Golden Gate (1964:67).

For the indentured sojourner who arrived in San Francisco, difficulties and privation were only beginning, although he was fortunate to have survived the ocean voyage on which many died. Dreams of acquiring wealth and making a quick return to China, however, vanished before the hardship of life in America. In many nefarious ways, the laborers' debt bondage was prolonged seemingly indefinitely, and even those who eventually returned to China by the end of the century had very little to show for all their toil.

In a critical way, the credit-ticket system worked to "extend the social structure of the Chinese world into California" (Barth 1964:2). This is an essential point for viewing the Chinese experience in the West and particularly for understanding the social organization of the Chinese community in San Francisco. This economic arrangement enabled destitute and desperate Chinese workers a means of passage across the Pacific to California, provided them with food and lodging in San Francisco upon arrival, and placed them in workcamps in mining areas, with railroad construction outfits, in land reclamation projects, and so forth. However, collection of the debt incurred for providing all this service was assigned to kinsmen and merchant leaders of clan and district associations in San Francisco. Workers' debts were deducted from their wages by the heads of these organizations and by the merchant-creditors who originally sponsored the laborers' passage. In many cases, according to Lyman, association leaders often acted as "contractors or subcontractors and sent out gangs of men to work" (1970:64). In this manner Chinese entrepreneurs solicited laborers in China among their own district kin and other countrymen, organized specific work forces of Chinese laborers throughout California, and held these workers in check by preventing them from escaping back to China through special agreements they made with merchant steamship companies (see Lyman 1970:70). Thus, covert Chinese control

over Chinese labor in California was tightly secured, and a cheap labor force for California's growing economy was guaranteed.

The Chinese merchants and association heads created and maintained a highly lucrative system of debt bondage that insured their pivotal position within the Overseas Chinese community. They managed to do this primarily by controlling the clan and district associations, transforming these otherwise benevolent organizations into powerful vehicles of extralegal social control existing outside California law and jurisprudence. Furthermore, they effectively manipulated the vulnerable sojourners' loyalty to their families in the rural villages of southern China by holding them accountable for the debts their relatives and co-villagers incurred on their behalf. In fact, these merchant-creditors used the emigrants' strong sense of filial piety, devotion and loyalty to family and clan, and desire for overseas employment in order to support traditional family life at home which had become progressively eroded by a failing domestic economy. In so doing the lines of kinship and social relationships linking the sojourners with family and clan members in China were transplanted in albeit fragmented form into frontier California's pluralistic social fabric. Ironically, it was these same social bonds and family ties, connections which helped control and virtually enslave the Overseas Chinese population, that also allowed them to retain a sense of their ethnic identity and a measure of social solidarity in an alien, unfriendly world.

To add to the inequities of the indenture system, the Chinese in California almost immediately experienced pervasive racism and social discrimination. According to Philip Choy, "The prevailing sentiment of California was anti-Chinese, the mood was hostile, the tone was racial" (1971: 269). In fact, Lyman asserts that "the Chinese were objects of racist thought even before they arrived in America," although, he continues, "it was their presence in the California mines and in other primary laboring occupations and the prediction that they would 'swarm' over the whole nation that triggered repressive action" (1974: 54, 58). According to many social historians, the underlying cause of the aggressive anti-Chinese movement in California was economic in nature, and Sandmeyer (1939:109) was among the first to point out that the roots lay in deeply felt social and economic grievances. Focusing on the real and imagined threats that

cheap Chinese labor posed to white workers' interests, Anglo workingclass laborers harassed the Chinese and agitated for their removal from various spheres of economic activity, first in the frontier mining camps and later in the urban market place. Eventually, the anti-Chinese movement culminated in the blatantly repressive federal Exclusion Act of 1882, which placed severe limitations on Chinese immigration into the United States.

Whereas discrimination against the Chinese was barely noticeable in early years, hostility toward them became more frequent and vociferous as their numbers grew. As the general economy worsened in a nationwide depression in the 1870s, anti-Chinese agitation reached fanatical heights.

Before 1848 there were only a handful of Chinese in California, practically all of them in San Francisco. In 1849 the Chinese in the city numbered 54, reaching 789 by 1850, and increasing by the end of that year to some 4,000 individuals, most of whom immediately departed for the gold fields (Chinn 1969:9). During this period attitudes toward the Chinese were relatively tolerant, even favorable on occasion. The editor of the **Daily Alta California**, for example, wrote on May 12, 1851, that "it may not be many years before the halls of Congress are graced by the presence of a long queued Mandarin sitting, voting, and speaking beside a don from Santa Fe and a Kanaker from Hawaii. . . . The 'China boys' will yet vote at the same polls, study at the same schools, and bow at the same altar as our countrymen."

This initial optimism and mood of acceptance was extremely short lived, however, rapidly giving way to overt hostility with the advent of the influx of more than 20,000 Chinese in 1852. Commenting on this unexpected wave of emigrants, most of whom fanned out to the gold fields, the **San Francisco Picayune** observed on April 17, 1852:

In China, the California fever seems to have reached an unprecedented height, and the long tailed and curious denizens of that strange world evinced as great eagerness to reach our magic land as ever exhibited by our own countrymen. . . . They are flocking in upon us by the hundreds, every ship arriving from thence, bringing from one hundred and fifty upwards. Six ships have arrived since the 25th of March, and have brought an accession to our Chinese population of eleven hundred and twenty-six souls.

Throughout the 1850s and 1860s, virtually all the Overseas Chinese

in America were concentrated in California, with over 80 percent in gold mining areas (see Chinn 1969:22), where they were targeted for discrimination as soon as they appeared. Anti-Chinese racism took several forms, ranging from abusive verbal and written slander through various types of restrictive legislation to outright mob violence and physical expulsion. Widely distributed anti-Chinese political cartoons published in the **San Francisco Illustrated Wasp** and other news media focused attention on the Chinese question and reflected the pervasive racial prejudice existing in California at that time (see Figures 9.04 and 9.05). Detailed accounts of the repressive measures taken against the Chinese are best summarized by Sandmeyer (1939), Lyman (1970, 1974), and Heizer and Almquist (1971: 154-177). Only highlights of this unpleasant history concern us here in order to glimpse the conditions under which the Chinese in America had lived.

As early as 1849 in a place called Chinese Camp, an uprising against 60 Chinese miners took place (cf. Lyman 1970:72). In 1852 white miners in Marysville established a resolution barring the Chinese from the area, making it impossible for them to make any mining claim. Soon afterwards, these miners forcibly expelled all the Chinese from the areas. From 1850 until 1870, when it was declared illegal, several versions of the infamous California Foreign Miners' Tax were enacted. These laws unfairly discriminated against the Chinese and other non-Anglos who were made to pay exorbitant taxes on the gold that they mined.

By the 1860s, as Lyman points out, "despite the decline of the mining industry, or perhaps because of it, Chinese were still expelled from areas in which they had settled down to work or were forcibly driven out of their jobs" (1970:73). Although some harassed Chinese trickled eastward into other mining areas of the West as the gold rush ended by the mid-1860s, more began to enter other occupations such as railroad construction and the various manufacturing and service industries located in cities. Predictably, racial prejudice and social discrimination followed. It was in the urban ghettos, or Chinatowns, principally in San Francisco, however, where the Chinese began to congregate in significantly large numbers beginning in this decade, that economic competition and Sinophobia manifested itself most rampantly.



Figure 9.03: Dinner at a Chinese Truck Farm, 1899. . .Very common stoneware bowls similar to the ones recovered from N-5 are shown in this scene of Chinese truck farmers having their meal after a day's work in the fields in Berkeley. This rare photograph appeared in a nutritional study of Chinese vegetarian agricultural workers in the 1890s. The servings were generous and the food looks delicious! (University of California Agriculture Library)



Figure 9.04: The "First Blow". . .This dramatic political cartoon, appearing on the cover of the December 8, 1877, *Illustrated Wasp*, reflects open hostility toward the Chinese in San Francisco. The Workingmen's Party misdirected their economic grievances against the ethnic Chinese whom they saw as unfair labor competition. (Bancroft Library)

A major characteristic of the Chinese in America, as Lyman observes, is their settlement in cities (1970:77), and the growth and development of San Francisco's Chinatown is, therefore, vital to our understanding of the Chinese emigrants. Although the Chinese population of San Francisco in 1860 was only 2,719 persons, much greater numbers working in distant mining regions or railroad construction camps always returned to the city as their place of permanent residence. According to the 1877 congressional testimony of Frank M. Pixley, an opponent of Chinese immigration:

San Francisco is the heart and hive and home of all the Chinese upon this coast. Our Chinese quarter, as it is called, is their place really of residence. If they go to a wash house in the vicinity, to a suburban manufactory, to gardening near the town, or if to build railroads in San Bernardino or on the Colorado, or to reclaim tule lands in the interior, their departure there is temporary, and their return here is certain; therefore, the number in San Francisco depends upon seasons and the contract labor market (U.S. **Congressional Report**, 1877, no. 689, p. 12).

In the decades after 1860, San Francisco's Chinese community grew dramatically both in absolute numbers and in proportion to the rest of the population. By 1870 the number of Chinese in the city leaped to over 12,000, and from 1880 through the 1890s the population again doubled to approximately 25,000, almost 35 percent of the state's total Asian population (see U.S., Department of Interior, **Census**, 1880 and 1900; **Report of the California State Board of Labor Statistics** (1904:73); Chinn et al. 1969:21). Not until 1900 did the urban Chinese population drop sharply from the impact of the exclusion laws limiting new immigrants coupled with the departure of numerous Chinese back to China or to other parts of the United States. During the second half of the last century, San Francisco contained more than a third of all the Overseas Chinese in the entire state.

A combination of socio-economic factors such as the decline of mining activities, continued emigration from China, new urban based occupational opportunities, a demand for a cheap labor supply, and the direct threat of racial hostility influenced the formation and growth of San Francisco's Chinatown. Remarkably, the Chinese quarter in San Francisco has maintained the same geographical boundaries within the confines of the city almost from its inception (see Maps 9.02 and 9.03).

Although Chinese businesses were more or less dispersed throughout San Francisco in the early 1850s, many Chinese stores soon began to cluster on Sacramento Street between Kearny and Dupont (now called Grant Avenue) streets. Older Chinese still refer to Sacramento Street as **Tong Yan Gai**, or "Chinese Street" (see Figure 9.06). While it is not certain why Chinatown emerged where it did, as early as November 21, 1853, the **Daily Alta California** noted that the "Chinese were occupying buildings on Dupont between Sacramento and Jackson Streets and on Jackson Street from Kearny to Stockton." By the mid-1850s San Francisco's Chinatown had grown, taking on a distinctive ethnic quality of its own (see Figures 9.07, 9.08 and 9.09). Drawing on the February 1856 issue of **The Oriental**, Chinn describes Chinatown in this era as:

. . .a bustling place with thirty-three general merchandise stores, fifteen apothecaries, five restaurants, five butchers, five barbers, three tailors, three boarding houses, three wood yards, two bakers, five herb doctors, two silversmiths, one wood engraver, one curio carver, and one broker for American merchants and a Chinese interpreter (1969:10).

Writing his reminiscences of California in 1857, J. D. Borthwick provided additional, if prejudiced, glimpses into life in San Francisco's Chinese quarter:

The majority of the houses were of Chinese importation, and there were stores stocked with hams, tea, dried fish, dried ducks, and other very nasty-looking Chinese eatables, besides copper pots and kettles, fans, shawls, chessmen, and all sorts of curiosities. Suspended over the doors were brilliantly colored boards. . .covered with Chinese characters, and with several yards of red ribbon streaming from them; while the streets were thronged with Celestials, chattering vociferously as they rushed about from store to store, or standing in groups studying the Chinese bills posted up in shop windows, which may have been play-bills--for there was a Chinese theatre--or perhaps advertisements informing the public. . . (1857:61).

Over the next three decades Chinatown grew physically, eventually being bordered by California, Stockton, Broadway, and Kearny streets, but it increased explosively in its numbers of businesses and residents (see Map 9.03). As more sojourners poured in and as the city grew around it, Chinatown rapidly became a tightly bounded ethnic enclave which co-existed within the city but remained separate from it.

For the Overseas Chinese emigrants flooding into America, San Francisco's Chinatown was, and to some extent continues to be, the vital



Figure 9.06: Tong Yan Gai or "Chinese Street". . .View of Sacramento Street east of Dupont Street looking toward the Bay from the heart of Chinatown in 1885. (Bancroft Library)

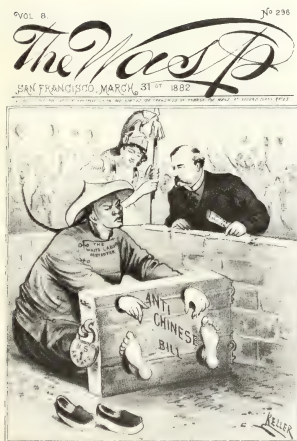


Figure 9.05: "Capital Stocks". . .Another Illustrated Wasp cartoon appearing five years later depicts the "solution" reached on the "Chinese Question"--repressive federal Exclusion Acts in 1882 which this cartoon celebrated. These laws halted further Chinese immigration, allowed only certain Chinese classes entry into the United States for short periods, and forced the expulsion of many Chinese laborers already in California. (Bancroft Library)

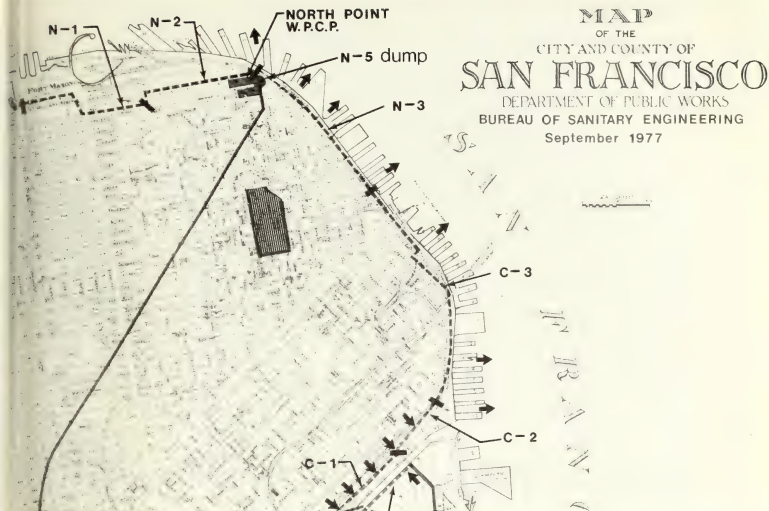




Figure 9.08: Chinese Butcher Shop and Grocery Store c. 1890. . . It was from shops like this that the Chinese in San Francisco purchased their meat, vegetables, and other foodstuffs. Though much was locally produced, many indigenous Chinese foods and condiments sold in this store were imported from China. In the central foreground is a large barrel-shaped straight-sided ceramic jar similar to the ones unearthed at the N-5 site. (Bancroft Library)

Figure 9.07: A Typical Street Scene in San Francisco's Chinatown, 1880s. . . Chinese workmen and petty merchants mill around a street in the city's Chinese quarter during the last century. Of course, all the shop signs and public notices are written in Cantonese. (Bancroft Library)





Map 9.02: Map of Northeast San Francisco. . showing Chinatown in relation to the N-5 Chinese dumpsite. (WMP)

center of their transplanted socio-cultural universe. The vast majority of the nineteenth-century residents were Chinese working men cut off from their wives, families, relatives, and natal villages; they were isolated, transient sojourners living in an American frontier city ghetto. In 1869, **Atlantic Monthly** described these emigrants and their first hours ashore:

. . . a living stream of the blue coated men of Asia, bearing long bamboo poles across their shoulders, from which depend packages of bedding, matting, clothing, and things of which we know neither the names nor the uses, pours down the plank. . . . They appear to be of an average age of twenty-five years and though somewhat less in stature than Causcasians, healthy, active and able-bodied to a man. As they come down upon the wharf, they separate into messes or gangs of ten, twenty, or thirty each, being recognized through some to us incomprehensible free-masonry system of signs by the agents of the Six Companies (who assigned them) places on the long broad shedded wharf to await inspection by the customs officer. . . . (Afterwards) they are turned out of the gates and hurried away toward the Chinese quarters of the city by the agents of the Six Companies. Some go in wagons, more on foot, and the streets leading up that way are lined with them, running. . . and carrying their luggage suspended from the ends of the bamboo poles slung across their shoulders (pp. 542-548).

Frequently, the emigrants were met by unemployed young whites who heckled them and threw stones, potatoes, and mud. Finding a modicum of safety once in Chinatown, they were given accommodations in the crowded dormitories owned and operated by the Chinese district associations, and in this way, they were absorbed into life in their new home (see Chinn 1969:16).

In addition to economic factors, two complementary forces operated to create and perpetuate Chinatown. One was the ever-present external threat of white racism which occasionally flared into mob violence, and the other was the pervasive internal bonds of socio-cultural cohesion which the Chinese themselves retained through their language, traditional modes of dress, custom, and life style. Lyman best summarizes what the Chinatown ghetto meant in the lives of the sojourners:

It was in Chinatown that the lonely Chinese laborer could find fellowship, companions, social familiarity, and solace. Chinatown acted as a partial buffer against the prejudices, hatreds, and depredations of hostile whites. Chinatown included the offices and hostelryes of the various Chinese benevolent and protective associations, places where one could

get a bunk for the night, some food, a stake, and a knowledge of the number, kinds, and conditions of available jobs. Chinatown also housed the Chinese elite--the merchants of the ghetto--who acted as spokesmen for the protectors of the laborers and who held the latter in a state of political dependence and debt bondage (1970:78).

For the often embattled emigrant, Chinatown essentially provided an island of relief and a degree of security in familiar surroundings in an alien world. Chinatown was also a place where emotional conflict and repressed feelings could be channeled outward through prostitution and the fantasy world of alcohol and opium. Yet, Chinatown represented a paradox: it was a surrogate home in a strange land, but it was also a ghetto prison symbolizing the exploitation and the racial hatred that helped created it. As Lyman observes: "A powerful sense of group feeling and many social needs found institutionalized expression in Chinatown at the same time that white aversion and hostility gave added reasons for those Chinese institutions to continue and flourish" (1970:79). In other words, Chinatown was the creation of both external and internal social factors, a world housing a cheap and accessible workforce but distanced from the larger society. This exclusion from the surrounding world encouraged increased reliance on traditional social institutions and cultural patterns, and as white aggression against the Chinese mounted, the sojourners retreated further into their ghetto enclave where familiar social bonds--and familiar imported goods from China--supplied their needs.

Foremost among the traditional social institutions in Chinatown were the clan or family association, the district association or *hui kuan*, and the secret or *tong* society. Dozens of these groups overlapped to created an intricate network of ties that shaped not just the emigrants' social world but provided services ranging from hostels and dormitories, eating places, and employment centers to advice, legal and political protection, and charity. (For more information on these important organizations, see Lyman (1970, 1974), Barth (1964), and Chinn (1969).)

Another factor shaping life in Chinatown for the Overseas Chinese community was the radical shortage of Chinese women in America. Throughout most of the century, San Francisco's Chinatown was almost solely an enclave of single, young to middle-age, workingclass males. According to Lyman, "During the entire period of unrestricted immigration

*Official Map of
Chinatown San Francisco*

*Richard made the survey for
of the Special Committee of the
San Francisco Police Dept.*

*John C. McArthur
1885*

San Francisco, California

Chinese American Community

Chinese American Community

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Map 9.03: Chinatown in 1885. , with a building-by-building survey of the enclave's supposed vices. (Farwell, Report of the Special Committee on the Condition of the Chinese Quarter, 1885)

(1850-1882), a total of only 8,845 Chinese women journeyed to American shores. In that same period over 100,000 men had arrived in the United States. . . . By 1890, only 3,868 Chinese women were reported to be in the country" (1970:83). In fact, the number of Chinese women in the population steadily declined until 1900, and in the entire latter half of the century, the sex ratio averaged about 1 Chinese woman to every 20 Chinese men. This scarcity of Chinese women--a situation created both by Chinese custom and American immigration laws--had numerous serious consequences. First of all, it naturally increased emotional stress for male workers already beleaguered by their low indentured status. Secondly, the lack of women made it impossible to maintain the ideal Chinese extended family structure, and in the absence of family members, the clan or district associations strengthened their hold over the emigrant laborer whose loyalty to wife, family, and village assured his repayment of debts to the merchant leaders of the organizations. Finally, the few Chinese women who traveled to America on their own were often unwillingly pressed into prostitution to provide for the sexual needs of the Chinese workers. Prostitution in Chinatown and its profits were under direct tributary control of the Chinese secret societies, further extending their influence over the mass of workers in Chinatown. As John W. Stephens concludes in his quantitative study in Chinatown: "It was a society where men far outnumbered women and where families were the exception, not the commonplace" (1976:85). As another result, Chinatown depended solely on a continuous flow of immigrants to maintain its existence. Under these circumstances, the merchant-creditors who dominated the contract labor business were more easily able to sustain their system of control and drudgery.

During the 1870s and 1880s, as large numbers of Chinese began to concentrate and settle in San Francisco's Chinatown, the Chinese workers became a significant segment of the urban labor force. Prevented from pursuing their traditional livelihoods as farmers and traders by a variety of restrictive laws and discriminatory practices, they moved into low-status urban occupational niches such as laundry and restaurant work, petty merchandising, and domestic services. Many also found employment in light manufacturing, in the woolen, textile, and clothing industries, and in shoe and cigar making, all of which were critical to San Francisco's

developing economy (see Figures 9.10 and 9.11 which depict the Anglos' exaggerated fears of Chinese laborers).

In the 1870s when the nationwide economic depression created widespread unemployment, anti-Chinese sentiments surfaced quickly, and the Chinese became the main target of hostile labor unions. Organized in Denis Kearney's Workingmen's Party of California, urban white laborers viewed the Chinese, who worked for lower wages, as unfair competition and rallied for their removal from not only the marketplace but from the entire country under the slogan, "The Chinese Must Go". The economic issue of cheap Chinese labor was strongly colored by inflammatory racial bigotry, and increasing incidences of racial violence culminated in 1876 when the Chinese ghetto was burned and looted for several weeks. As a result of this hostility and labor agitation, the Chinese left many former occupations and business enterprises, retreating deeper into Chinatown, and many eventually returned to China when the United States passed the Exclusion Act of 1882. Although a few wealthy merchants stayed on in Chinatown, by the end of the century most who remained were those too poor to return to China, homeless and trapped in an urban ghetto from which they were unable to leave. "In the end," as Lyman observes, "the Chinese were forced to retreat behind the 'walls' which prejudice and discrimination had erected--they returned to the ghetto and inside it attempted to build a secure if not prosperous life" (1970:98).

Pressured to move more deeply into the urban ghetto by the hostile society around them, the Chinese had neither opportunity nor motivation to assimilate, tending instead to hold onto their indigenous cultural traditions. In whatever way the Chinese in America may have been forced to change and adapt, "they were not," as Robert Spier notes, "forced to alter their customary eating habits" (1958:79). Perhaps more than any other aspect of their culture except language, the cluster of traits surrounding food preparation and consumption remained the most vital to the Overseas Chinese in maintaining their ethnic identity. Furthermore, continuity in Chinese food practices not only helped preserve a way of life but also provided meaning and enjoyment to the sojourners faced with an otherwise intolerable life as indentured laborers in a strange land.

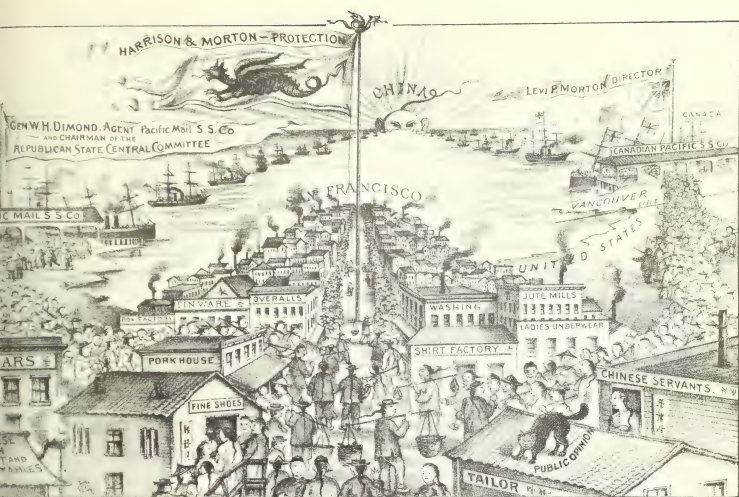


Figure 9.10: Chinese Workers Flooding Into San Francisco During the Late 1800s. . . A *Wasp* cartoon expressed the exaggerated fears regarding the influx of cheap Chinese labor streaming into the city and its effect on local industry. (Bancroft Library)

Figure 9.09: Interior of a Chinese Store c. 1890. . . This distinctly Chinese shop sold teas, spices, and healing herbs expressly used by members of the city's Chinese community. Shops like this one helped maintain ethnic Chinese food preferences and cultural identity. (Bancroft Library)





Without question, Chinese food is infinitely varied, complex, and delicious. As the philologist Lin Yutang wryly remarked: "If there is anything the Chinese are serious about, it is neither religion nor learning, but food." This has characterized the Overseas Chinese wherever they have settled.

The distinctive and easily appreciated Chinese cuisine did not go unnoticed by the Anglo Americans in San Francisco in the 1850s. Despite racial animosity, they willingly patronized the Chinese restaurants which sprang up as early as 1849 and became common throughout the city. These eating establishments, Laverne Mau Dicker observes, were "a necessity at a time when few Chinese lodging houses included kitchen facilities, and emigrants longed for their native foods (1979:5). Eating, sharing, and enjoying customary foods helped ease the drudgery of hard work and long hours far from familiar surroundings of family and relatives (see Figures 9.02, 9.03, and 9.12).

Both historical sources and the archaeological ceramic collection gathered at N-5 show that the Chinese continued to eat traditional foods and that their manner of food preparation and consumption changed very little. In an insightful study on the food habits of the nineteenth-century California Chinese, Spier substantiates that "not only was there a continuation of habits of diet, but also of the techniques of food production as evidenced by the implements involved. Furthermore, . . . the Chinese had the components of a richly varied diet" (1958:78). Like Borthwick's observations above, Spier's examination of U.S. Custom House records indicates that substantial shipments of foodstuffs arrived from Hong Kong for consignment to Chinese merchants in San Francisco as early as 1852 and were clearly destined for Chinese consumption. Included in these shipments were:

oranges, pumelos, dry oysters, shrimp, cuttle fish, mushrooms, dry bean curd, bamboo shoots, narrow-leaved greens, yams, ginger, sugar, rice, sweetmeats, sausage, dry duck, eggs, dry fruit, salt ginger, salt eggs. Among the foods on other invoices are tea oil, dry turnips, bettlenut, orange skins, kumquat, duck liver, melon seed, dried duck kidneys, minced turnips, shrimp soy, chestnut flour, birds' nests, fish fins, arrowroot, tamarind, dried persimmons, dried guts, bean sauce, lilly seed, beche de mer, Salisburia seed, taro, and seaweed (Ibid.).

From 1850 to 1854, the bulk of the shipments from the Orient contained

food or beverage items such as many varieties of black and green teas and Chinese-manufactured brandy. More than 80 percent of all the invoices listed food or potables, and over 130 separate food items were included in the various shipments (Ibid.:80). Besides food and drink, cooking implements and eating utensils were also imported in large numbers, and among the consignments were "chinaware, wooden ware, bamboo ware, laquer ware, iron and copper pans, chopping knives, chopsticks, ladles, tongs, and mills. . ." (Ibid.:80). Clearly, the Overseas Chinese in America were not only eating familiar foods but also employing familiar household implements in preparation, cooking, and serving. In addition, many of the different foods imported from China came packaged in traditional ceramic ware containers (categorically designated utilitarian Brown Ware in this report because of their distinctive brownish glaze and functional component). Items packed in brine like pickled vegetables and ginger, other viscous products such as soy sauce, peanut oil, sorghum, and alcoholic beverages, as well as various condiments were shipped and sold in one of a variety of these ceramic Utilitarian Brown Ware containers which were manufactured in southeastern China expressly for food packaging purposes. Many discarded examples of this food ware appear in the N-5 ceramic sample, substantiating the range of traditional food items coming direct from China which entered the diet of the Overseas Chinese in San Francisco.

Although Spier's list of food-related imports could be expanded considerably to include an even greater array of foods, drink, condiments, utensils, tableware, and other items of common use, it does suggest the vast range of distinct foods and food related equipment that comprised an essential part of the sojourners' everyday existence in the ghetto. From this, too, it is clear that the great majority of Chinese emigrant workers residing in San Francisco continued to eat virtually the same foods and to prepare their meals in the same ways as they had known in Southern China. Importing into America practically their entire food complex, they were able to retain indigenous ethnic dietary practices throughout their seemingly endless sojourn in a foreign land.

Most of the men who worked together in Chinatown's laundries, restaurants, and sweatshops or who served in work gangs in railroad camps or land reclamation projects lived and ate together in communal style. Others crowded into clan or district association dormitories where a



Figure 9.12: A Chinese Reception in San Francisco, 1877. . .This lithograph shows a Chinese banquet where affluent Chinese merchants dine while a group of musicians and courtesan-singers entertain in the center of the hall. Typical Chinese tablewares grace the dinner table, and a Chinese servant kneels before a tray of tea pots and tea cups just removed from the table (foreground). (Bancroft Library)



Figure 9.11: "What Shall We Do With Our Boys?", 1882. . .This satirically biting political cartoon appearing in the *Wasp* in 1882 at the height of the Chinese exclusion movement reflected the feelings held by White workers that Chinese emigrants were controlling most of the light industry in San Francisco. They believed that because the Chinese were willing to work diligently and cheaply making cigars, manufacturing shoes, milling textiles, and sewing garments, unemployed white youth were forced into lives of crime, idleness, and poverty. (Bancroft Library)



collective kitchen served familiar foods. Spier indicates, too, that: "On all major jobs the Chinese, who had to board themselves, in contrast to white labor, messed together" (1958:130). Usually the expenses of food preparation were shared by the group, and a portion of an individual worker's salary was deducted for meals. Railroad labor gangs of Chinese workers numbered between 12 and 30 men, which formed an "eating unit" (Ibid.:130), and imported Chinese food was even made available to them through special stores in the camps run by the Chinese labor contractors. Wherever Chinese workingmen congregated, there was an abundant variety of homestyle foods and the ubiquitous pot of hot tea, a remarkable fact given their "bachelor context," as Spier terms it, and the absence of women to do the cooking.

Without a doubt, Chinese emigrant workers actively sought to maintain traditional aspects of their culture, particularly those practices surrounding the preparation and eating of food. Factors influencing this transference of Chinese food practices and dietary habits to America included (1) strongly held preferences for accustomed, familiar foods; (2) external racial hostility excluding the Chinese from gaining access to the different cultural ways of the dominant Anglo American society; (3) their enforced isolation in Chinatown ghettos and frontier work camps; and (4) the availability of abundant traditional foodstuffs and other imported products coming directly and frequently from China by ship to San Francisco. White racism excluded the Chinese from everyday social interaction with Anglo culture, and Chinese-Anglo contact consisted mostly of employee-employer business relationships. According to Spier, the "Chinese did not purchase much from white storekeepers and did not eat in white homes and restaurants" (1958:133), thereby further limiting the opportunity for them to learn much about Anglo American culture. Prevented from gaining access into any other world, they remained isolated in urban ghettos which reinforced their dependence on each other and on known social institutions while strengthening their adherence to customary cultural patterns.

The extent to which the Overseas Chinese in San Francisco and other parts of California retained their traditional food practices broadly reflects the community's degree of acculturation as well as its strength of ethnicity, and in the sojourners' tightly bound world, the rate and extent of acculturation was barely perceptible. As Spier comments:

The customary Chinese diet persisted among the Chinese of California and. . .they took direct steps to maintain it. Not only were food habits continued, so also were the associated behaviors. The traditional foods, the culinary wares, the implements of production, and the techniques of processing were all transplanted from China to California (1958:135).

It is within this framework of cultural continuity, persistence of tradition, ethnicity, and acculturation that the Chinese ceramics recovered at the N-5 dump are best examined. These artifacts reflect the life style, outlook, and condition of the Chinese workingclass community of San Francisco during the last century, and a careful analysis of these artifacts can help us further understand something of the nature of human social process.

Before discussing the N-5 Chinese ceramics in individual detail, it must be observed that all of the pieces were probably originally manufactured in China and subsequently exported to San Francisco. Several lines of evidence support this supposition. First, an extensive search of city business directories from the late nineteenth and early twentieth centuries uncovered no references to any Chinese-owned pottery-making company in the United States during the time period in question (see Wells Fargo Co.'s **Express Directory of Chinese Merchants** for 1873 and its **Directory of Chinese Business Houses** for 1878 and 1882; also, see the 1913 **International Directory of Chinese Businesses**). While Hittell (1882) notes that Chinese workers were employed by some nineteenth-century California pottery-making companies, there is no evidence to suggest that any of these individuals had any proprietary interest in the firms for which they worked or that any of the pottery produced by these concerns was of Chinese pattern or design. Consultation with an historian of the nineteenth-century Asian experience in California likewise failed to bring to light the existence of any locally based Chinese-owned ceramics industry in this period (Nancy Wey, personal communication, June, 1980). Further, the shapes, designs, and patterns of the ceramic pieces recovered from N-5 are entirely consistent with what was produced in China in these years (Ibid.).

On the other hand, ample evidence documents the extensive and relatively inexpensive importation of Chinese goods into San Francisco during the second half of the nineteenth century (Spier 1958), a period

when rampant discrimination against the Chinese would have made any attempts at establishing a Chinese manufacturing enterprise extremely hazardous and unlikely. As Dicker concludes:

The Chinese in California were prevented by circumstances from carrying on their traditional means of earning a living: farming or trading. The Workingmen's Party and anti-Chinese bias kept them out of the local market, the unions kept them out of organized labor, the Alien Land Act kept them from owning farms, the Foreign Miners' License Tax kept them out of the mines (1979:5).

The evidence strongly suggests, then, that virtually all of the Chinese ceramic ware found in the United States during the nineteenth century was imported and that no organized, California-based, Chinese pottery manufacturing industry had yet been established.

It is a more difficult task to prove that the Chinese alone utilized the Chinese ceramics recovered from N-5. Specific documentation on the matter is scarce. While it is obvious that San Francisco's Chinese population made extensive use of this ceramic ware, it is also possible that other ethnic groups in the city used them, too. While specialized or unusual ceramic pieces recovered at N-5 such as the ritual candlestick holders or opium pipe bowls were probably used strictly by members of the Chinese community, the bulk of the collection, foodware, might have been used by other parts of the population.

Although many non-Asian households in San Francisco use Chinese ceramic tableware today, it seems likely that this practice was not as common a century ago. The Chinese were a despised cultural minority subjected to intense racial prejudice and scorn, and Chinatown was a segregated ghetto which, in the minds of many Anglo citizens, harbored disease, crime, prostitution, and many other social ills. In accordance with these negative stereotypes, San Francisco's Chinatown, like other Chinese ghettos throughout California, was routinely denied access to city services such as water, sanitation, and refuse disposal (Wlodakski 1976:447, Trauner 1978: 81-82). While some nineteenth-century Anglo Americans must have made forays into exotic Chinatown and bought meals of Chinese cuisine (see Dicker 1979:5), archival research and examination of historic photographs confirm that Chinese restaurants and stores were predominately patronized by Chinese emigrant workingmen who used traditional tableware

and other imported items of material culture. In conclusion, all the available evidence indicates that the Chinese ceramics recovered from the N-5 dump sites were primarily utilized by members of San Francisco's Chinese American community.

AN OVERVIEW OF THE N-5 CHINESE CERAMICS

The Chinese ceramics from the N-5 dump site in San Francisco constitute the largest and most diverse collection of nineteenth-century Overseas Chinese pottery unearthed anywhere in the United States to date. In common daily use by the majority of ordinary Chinese emigrants living in San Francisco during the last century, these ceramics are not the classic Chinese porcelain ware found today in museum collections or the specialized armorial tableware services which were manufactured in China expressly for the European and American markets of the seventeenth and eighteenth centuries (see Palmer 1976; Gordon 1977). None of these elaborate types of ceramic ware appear in the excavated materials from N-5, since the dump site post-dates the height of this export market and since most of the Chinese emigrants were too destitute to even dream of possessing antique and expensive porcelains. It is also highly unlikely that exquisite Chinese ceramic art pieces would find their way into a refuse dump; any valuable porcelain objects of this type that were brought to San Francisco were invariably safely preserved as heirlooms in the homes of the few wealthy Chinese merchants in the city. Instead, the artifacts found at the N-5 dump overwhelmingly reflect the mundane but essential activities surrounding the packaging, storage, shipping, preparation, cooking, and eating of food. The vast majority of the more than 635 ceramic pieces are foodware items consisting of two principal types of pottery: (1) Utilitarian Brown Ware food containers, and (2) Stoneware and Porcelain Tablewares. Making up a third component of the Chinese ceramic collection are a significant number of non-food related ceramic objects such as opium pipe bowls, decorative tiles, and candle holders, as well as an incense "sand pot" and a tripod base associated with leisure or ritual activities. The main emphasis of our analysis, however, will be the food ware artifacts.

A typology based on ceramic morphology and function has been developed in order to organize, classify, and analyze the great number of different pottery types represented in the N-5 collection (see Table 9.01). This typology draws upon the recent work of Chace (1976), Olsen (1978), and Praetzelis (1979a; 1979b), who have begun to establish analytical categories for the study of Overseas Chinese ceramics found in archaeological contexts in the United States. In addition to extensive comparisons

TABLE 9.01

N-5 CHINESE CERAMIC COLLECTION INVENTORY

I. Utilitarian Brown Ware Food Containers

- A. Beverage Bottles
 - 1. Traditional Shape
 - 2. Anglo Shape
- B. Spouted Jars
 - 1. Small
 - 2. Medium
 - 3. Large
- C. Steep-Shouldered Jars (Huge Globular Jars)
- D. Shouldered Food Jars
 - 1. Extra small
 - 2. Medium
 - 3. Extra large
- E. Straight-Sided Jars (Huge)
- F. Lids (3 Types)
- G. Thin Brown Jars
- H. Medicinal Tea Pot (Handle)
- I. Missing Vessel Types
 - 1. Squat Bulbous Jars
 - 2. Pans

II. Tableware

- A. Stoneware
 - 1. Three Circles and Dragonfly Pattern--a. rice bowls; b. shallow dish
 - 2. Bat Pattern--a. shallow dish
 - 3. Knot Pattern--a. shallow dish
 - 4. Swirl or Double Happiness--a. covers and bowls
- B. Porcelain
 - 1. Celdon Ware--a. wine cups; b. tea cups; c. rice bowls; d. serving bowls; e. shallow dishes; f. spoons
 - 2. Enameled Flower Ware (Four Seasons Pattern)--a. wine cups; b. octagonal tea cups; c. rice bowls; d. serving bowls; e. shallow dishes; f. spoons
- C. Miscellaneous Tableware

1. tea cups	5. tea pot lids
2. covers	6. wine or soy sauce serving vessels
3. rice bowls	7. unique vessel shapes
4. tea pots	8. miscellaneous sherds

III. Other Ceramic Ware

- | | |
|---------------------|---------------------------------------|
| A. Opium Pipe Bowls | D. Sand Container and Tripod Base |
| B. Decorative Tiles | E. Rectangular Red Seal Ink Container |
| C. Candle Holders | F. Flower Bulb Container |

with the ceramics associated with these other sites, we augment current research in this area by describing many ware types never before reported in the historical archaeological literature. Thus, the present chapter attempts to: (1) describe the N-5 Chinese ceramics collection in detail; (2) broaden existing categorical systems by including previously unknown ware types; and (3) give greater meaning, coherence, knowledge, and understanding of nineteenth-century Overseas Chinese ceramics recovered throughout the United States.

In general, the N-5 Chinese ceramic wares have been classified according to their fabric, or material substance of manufacture, size and thickness of the clay body, shape or form, design, glaze, and function. Relevant measurements of height, base and neck diameters, and clay thickness are presented for representational samples of each ware type or identifiable sherd that is discussed. Whenever possible, size, shape, and design are compared with published descriptions of similar ceramics found in California and the American West. However, many ceramic types varying in style, form, design, and glaze components, as well as in functional application, are found only in the N-5 collection from San Francisco. This has necessitated expansion and modification of typological systems currently in use.

The greater numbers and diversity of the N-5 collection clearly reflect the fact that San Francisco and its Chinatown have been the center of the Overseas Chinese American world from the beginning of Asian emigration to this country. Always the hub of Chinese American socio-cultural life, San Francisco has historically contained the greatest concentration of Overseas Chinese in America and has been the chief port of entry for both people and goods from the Orient. It is, therefore, no wonder that the quantity and range of artifacts recovered from the N-5 dump site is linked to the unique position that San Francisco has held as the urban focal point of the Chinese community in America. Furthermore, the rich variety of ceramic items not only reflects the considerably greater concentration of Chinese in San Francisco than elsewhere in the United States but also suggests the existence of definite socio-economic distinctions between the smaller, wealthier merchant group and the more numerous segment of poorer workingclass laborers. In particular, the N-5 ceramic

vessels are distinguished from those of other reported sites in the number and variety of sizes and shapes within the type categories of Utilitarian Brown Ware as well as the Celadon, Enameled Flower (Four Seasons), and Miscellaneous tablewares. This chapter significantly enlarges current type categories for this genre of ceramic ware by including comparative descriptions for vessel types not yet contained in any published reports.

The first major component of the N-5 Chinese ceramic collection is the Utilitarian Brown Ware, which also has been designated by the indigenous term *Jiān Yòu* and by the descriptive term "brown glazed stoneware". This group of pottery is distinguished by its stoneware body fabric which varies from gray to buff color and by its distinctive brown glaze. The ceramics in this group are labeled "utilitarian" because they functioned predominately as food containers for packaging, shipping, and storing many different foods and beverages. Numerous storage vessels of this body fabric were manufactured in many sizes and shapes as containers for an extremely wide variety of viscous foodstuffs. The vessels range in size and shape from the relatively small Thin Brown Jars and extra-small Shouldered Food Jar to the huge, thick-walled Straight-Sided Jars and globular-shaped Steep-Shouldered Jars. The N-5 collection holds the following Utilitarian Brown Ware specimens: Beverage Bottles, Spouted Jars, Steep-Shouldered Jars, Shouldered Food Jars, Straight-Sided Jars, Container Lids, Thin Brown Jars, and Medicinal Tea Pot Handle. Several similar vessel shapes and sizes are found in comparable collections made from other archaeological sites in the United States; however, several sizes in certain sub-type categories, as well as entirely distinctive shapes as such as the Anglo-Shaped Beverage Bottle and the Thin Brown Jars, are unique to the N-5 sample.

All of these brown ware ceramic containers held some sort of traditional Chinese foodstuff or beverage. The vessels were locally manufactured according to indigenous pottery specifications in the provinces of southeastern China, from where the majority of the Overseas Chinese emigrants originated. Native foods and beverages produced in China were packed in one of the types of ceramic containers represented in the N-5 collection and then shipped to San Francisco for consumption and use by the members of the Chinese American community in the city. The

Utilitarian Brown Ware vessels contained such traditional Chinese food and drink as Chinese whiskey (known as **Ng Ky Py**), soy sauce, sweetened black vinegar, salted vegetables, pickled ginger, peanut oil, maltose sugar, and so forth. Usually the viscosity of the particular foodstuff influenced the shape of its ceramic container. For instance, lighter, more fluid liquids were packed in narrow-necked bulbous vessels, while extremely viscous foods such as preserved vegetables were packed in wide-mouthed jars for ease in extraction of the contents. The quantity of food material shipped in any one container type, of course, affected the size, volume, and wall thickness of that particular ceramic vessel. Finally, in comparison with the N-5 Chinese ceramic Tableware, the Utilitarian Brown Ware vessels changed less rapidly and less radically over the years, since a familiar vessel shape easily identified the product, and people were more interested in the contents than the container itself. Both factors seem to have contributed to the stabilization and continuity of this group of vessel types, although an important variant form--the Anglo-Shaped Beverage Bottle--indicates attempts at Westernization (see below). The remarkable continuity in tradition of manufacturing Utilitarian Brown Ware can be seen today in the shops of Chinatown where virtually identical ceramic vessels containing traditional foods and beverages are still available for sale.

In contrast to the Utilitarian Brown Ware food containers, the N-5 Chinese ceramic Tableware, the next principal component of the collection, is considerably more numerous and variable in style and design. Almost three-quarters of the entire ceramic sample consists of stoneware and porcelain Tableware items which vary greatly from one another, particularly in design motif. Among the Tableware items are wine cups, tea cups, octagonal-shaped teacups, rice bowls, serving bowls, shallow dishes, large plates, and porcelain spoons. Most of these Tableware types appear in sizes ranging from small to large. Three major types of Tableware have been distinguished, primarily on the basis of fabric of the clay body and stylistic design pattern. First discussed is the stoneware Tableware which includes four distinctive design patterns: (1) "Three Circles and Dragonfly"; (2) "Bat"; (3) "Knot"; and (4) "Swirl" or "Double Happiness" designs. Next discussed is the Porcelain Celadon Ware, which has the largest number of Tableware items in the collection, and the third type considered is the

"Four Seasons" pattern of Enameled Flower Ware. In addition to these three main types, there are many Miscellaneous Tableware items in the N-5 collection, including uniquely patterned tea cups, rice bowls with covers, cylindrical and six-sided tea pots, blue and white flower design wine or soy sauce serving vessels, and a variety of distinctive vessel shapes not found in any comparable collection. Full descriptions and illustrations of this Tableware are presented in this chapter and in Appendix C.

The enormous quantity and variety of the N-5 Chinese ceramic Tableware compared to similar pottery recovered from other sites in California and the American West clearly reflects the significantly greater numbers and concentration of Chinese emigrants in San Francisco than anywhere else in the United States. Also, this Tableware suggests something of the complex socio-economic differentiation existing between merchant and workingclass Chinese emigrants in the city. These two segments of the Chinese community invariably utilized different types of tableware, and the greater wealth of the Chinese in San Francisco enabled them to import and purchase a wider variety of ceramic items than the Chinese living outside the urban center. Moreover, the richness of the N-5 Tableware fully substantiates the centrality of San Francisco as the major port of entry for the wide variety of goods, including an array of ceramic Tableware types, that simply never reached distant frontier mining camps or peripheral Chinatowns located in other parts of the country. It seems highly likely that the Tableware items in the N-5 collection, which were in daily use by the Chinese emigrants during mealtimes, were broken ceramic pieces discarded as refuse from the numerous restaurants and similar eating establishments serving the Overseas Chinese community in San Francisco. We know from historical and pictorial sources that thousands of Chinese emigrant workers who crowded the Chinese quarter of the city ate traditional-style meals in more or less segregated restaurants and dormitories. The full range of Chinese ceramic Tableware represented by the N-5 sample confirms not only that traditional foods were eaten but also that the use of chopsticks and other customary food habits and social patterns were imported into America as well.

The third and last main grouping of Chinese ceramics comprising the N-5 collection is simply labeled "Other Ceramic Ware." This is a

component of non-food ware items which reflects other activities of the nineteenth-century Chinese community in San Francisco. Within this category of ceramic objects are a selection of opium pipe bowls, decorative temple tiles, stylized candle holders, a sand pot container and tripod base used for burning incense, a rectangular ink container, and what appears to be a flower bulb container. These ceramic items point to a continuity and maintenance of traditional Chinese leisure and ritual activities that, in addition to the preparation and eating of food, also contributed to the socio-cultural life of the Chinese emigrants who lived and worked in San Francisco during the last century.

It is important to note that the historical archaeological analysis of the N-5 Chinese ceramics presented below differs in certain critical ways from the classical archaeological investigation of ceramic styles for preliterate cultures or long-vanished civilizations. Traditionally, prehistoric archaeologists have utilized pottery to examine aspects of chronology and cultural history in order to produce accounts of the sequences of a society's development (see Deetz 1967 for a general discussion). For example, slowly evolving ceramic styles are often interpreted as indicative of continuity and stability within a given culture, while evidence of a rapid change in the patterns, shapes, or modes of manufacture of pottery may suggest the presence of diffusion, archaism, or, perhaps, the replacement within a particular geographic region of one dominant class or ethnic group by another (see Ford 1935, 1949, Colton 1953, Shepard 1956, Deetz 1965, Matson 1965, and, especially, Rowe 1962). Many of these traditional goals of ceramic analysis, however, are inapplicable to the study of the Chinese materials recovered from the N-5 dump. Since we have ample archival documentation that the site was completely filled within a span of approximately five years during the 1880s, there is little need to construct a relative chronology from the recovered ceramics. In addition, because there is sufficient documentation of the ethnic group responsible for producing the ceramics, their approximate place of origin within China, and the social relationships between the Chinese emigrants in California and the dominant Anglo-American community, there is little purpose in attempting to corroborate these facts by an analysis of archaeological data. On the other hand, while the N-5 ceramics cannot provide broad brush

strokes of information about the expansive sweep of Chinese history, they can relate a tale of the Asian experience in nineteenth-century San Francisco writ small. Although these artifacts have nothing to say about wars, dynastic changes, or the ebb and flow of empires, the story they tell about the daily lives of the isolated Chinese sojourners and how they ate and drank and spent leisure time is equally intriguing and important.

Now we turn to the ceramics themselves, starting with Utilitarian Brown Ware food containers. Periodic reference to Table 9.01 will facilitate rapid understanding of the organization and categories of ceramic ware discussed below.

UTILITARIAN BROWN WARE FOOD CONTAINERS--TYPE 1

General Ware Description

The Utilitarian Brown Ware type is most effectively described as a variety of vessel types fashioned from a stoneware body fabric. This varies in color from gray to buff when fired in a reduction or oxygen-deprived kiln atmosphere, though a pink color appears when the clay is fired under oxygen-rich conditions. The clay body contains small rock-like inclusions of quartz and other minerals which resemble the constituents of coarse sand. On their surface, these Utilitarian Brown Ware vessels have a brown glaze which varies considerably in hue from reddish to greenish undertones and in finish from high gloss to dull matt. In general, the interior of the vessels, if glazed, tends to be brown in color and matt in surface texture, although a black-colored glaze is possible but missing from the N-5 sample.

This brown-glazed stoneware has been frequently known by the Chinese term, *Jiǎn Yǒu*, (*timnok* in Japanese). According to various authorities, it is a descendent of a Sung dynasty glaze type (Olsen 1978:36; Praetzelis 1979b:11). In this report, however, we have replaced the archaistic nomenclature *Jiǎn Yǒu* with the descriptive term, Utilitarian Brown Ware which implies no direct linkage with the Sung dynasty, a tie for which there is no clear proof at present.

Functional items and food containers such as Beverage Bottles, Spouted Jars, and a multitude of storage vessels were manufactured from the clay body described above. As a general rule, the larger, thicker-walled vessels, like the Huge Barrel Straight-Sided Jars and the Huge Globular Steep-Shouldered Jars, are more likely to have greater amounts of a heavy, sand-like temper or grog inclusions. Greater amounts of grog inclusions affected the clay temper, making it less sticky and more malleable during the shaping of the vessel. At the same time, this type of temper helped to prevent cracks in the vessel walls and bases due to differential shrinkage during the preliminary drying stages before firing. An alternate explanation for the amount of inclusions may be simply the use of poorly refined clay (Paul G. Chace, personal communication).

The glazing of the interiors of the Utilitarian Brown Ware was probably accomplished by pouring the glazing liquid into the interior and

rolling the vessel while at the same time pouring the liquid out. Then the exterior was immersed in the liquid while holding the vessel at its base. All the Utilitarian Brown Ware pots recovered from N-5 exhibit this characteristic unglaze base (often including an unglazed section of the side walls of up to one centimeter). The lone type exception, the Traditional Beverage Bottles, appear to have been dipped base-first into a thin glaze solution, probably while the potter grasped the neck. After drying (as inferred by the lack of finger prints), the bottle was then plunged once again into the glaze following the same procedure.

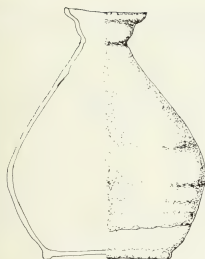
The direction of the drips which result from the build-up of the heavier areas of the viscous glaze during firing indicate that the Utilitarian Brown Ware vessels were stacked for firing on their bases. Furthermore, many of the bases have particles of sand adhering to the "foot" or ring base on the periphery. These particles suggest that the vessels were placed on a layer of sand in order to keep the pots from sticking to the kiln shelf when the molten glaze would run onto the shelf during firing. For additional discussion of this type of Chinese ceramic ware, see the report by Praetzelis (1979b: 21-22).

The different types of Utilitarian Brown Ware and the minimum number of each type that was recovered at the N-5 dump site in San Francisco are listed in Table 9.02. The following discussion presents detailed descriptions of each of these types in the sequence as it appears in the table; measurements, photographs, and additional information regarding this ceramic ware can be found in Appendix C.

A. Beverage Bottles

Traditional Shape Beverage Bottles

The Traditional Shape Beverage Bottles, often referred to as Wine, Tiger Whiskey, or Tiger Jugs, are distinctively shaped vessels (see Figure 9.13a, and Figure C.01 in Appendix C). They are built, from bottom to top, with an indented or stepped based moving to a squat bulbous body which constricts to a narrow neck terminating in a sharply flaring or splayed rim-neck finish. The raised base must have been wiped or rubbed completely clean of glaze after the base was dipped into the glaze solution, for the vessel sits on an unglazed ring. Published accounts and illustrations



N5-U-63
4CM



N5-N-376
4CM



Figure 9.14: Ng Ky Py Bottles in a San Francisco Store, 1980. . .The continuity of Chinese ceramic tradition is partially reflected in these contemporary Ng Ky Py bottles in San Francisco's Chinatown. They differ little from the ceramic bottles recovered from N-5 dating to the 1880s. Many other Utilitarian Brown Ware vessel shapes share in this conservative ceramic tradition, suggesting the persistence of Chinese cultural identity and cohesion. (Michael Love)

Figure 9.13a: Traditional Beverage Bottle. . .These distinctively shaped Utilitarian Brown Ware bottles contained a popular Chinese whiskey such as Ng Ky Py. A squat bulbous body constricts into a narrow neck with a flaring mouth opening. The bottles averaged about 30 ounces in capacity. (Jane Dill)

Figure 9.13b: Anglo Shape Beverage Bottle. . .Although made from a similar clay body, the Anglo Shape Bottles have been radically westernized to look like European or American whiskey or beer bottles. Existing in no other comparable archaeological sample, the N-5 bottles are as unique as they are puzzling. Perhaps they held the same alcoholic beverage as the Traditional Shape Bottles or were specially manufactured to hold a western-style product. (Jane Dill)

TABLE 9.02

TYPE I--UTILITARIAN BROWN WARE FOOD CONTAINERS

N-5 Report Category	Other Terms in Use*	Minimum Number of Vessels
A. Beverage Bottles (13)		
1. Traditional Shape	Wine Bottles; Tiger Whiskey; Tiger Jugs	8
2. Anglo Shape		5
B. Spouted Jars (38)	Soy Sauce Bottle; Soy Pots	
1. Small		12
2. Medium		1
3. Large		25
C. Steep-Shouldered Jars (Small and Large)	Huge Globular Jar; Large Brown Ware Jar; Thick-Walled Globular	9
D. Shouldered Food Jars(5)	Wide Mouth Brown Ware Containers	
1. Extra Small		1
2. Small		0
3. Medium		3
4. Large		0
5. Extra Large		1
E. Straight-Sided Jars (4)	Storage Vessels; Small Brown Ware Jars w/ Lids; Huge Barrel Jars	
1. Small		0
2. Large		0
3. Huge		4
F. Lids (9)		
1. Flared Straight-Sided		1
2. Straight-Sided w/ Rim		3
3. Flanged Cup		5
G. Thin Brown Jars		12
H. Medicinal Tea Pot		1
I. Missing Vessel Shapes		
1. Squat Bulbous Jars	Preserved Salted Vegetable Container	0
2. Pans	Earthenware Food Vessels	0
TOTAL:		91

*Chace 1976; Olsen 1978; and Praetzelis 1979b.

of similar beverage bottles are reported in Chace (1976:516) and Praetzelis (1979a: Figure 1a).

A minimum number of eight Traditional Beverage Bottles--five complete along with three rim and four body sherds--were recovered from the N-5 dump site. Among this N-5 sample, the vessels are assembled from three distinct mold-made parts. From the neck to the base, these sections consist of the splayed flaring rim of which the horizontal joint is fully visible; a midsection which proceeds from the constricted neck to the widest contour or point of tangency; and a bottom section reaching from the point of maximum tangency to the base (see Figure 9.13a).

All of the bases of the N-5 Traditional Beverage bottles are embossed with one exception (N5-U-317). The bottom section of the mold most probably had an intaglio, a deeply incised character or factory identification mark which resulted in the "reverse" embossed treatment. Four of these five bottles exhibit an embossed character or symbol which is centered within the base of the bottle. None of the designs in the N-5 collection are duplicates. If these embossed marks signify a specific kiln or factory at which the vessels were produced, then there were at least four factories which supplied the Chinese community of San Francisco from 1880 through 1885.

These characters range from a reversed swastika (N5-1), which is a Buddhist symbol (see Chaffers 1946), to an elaborate pseudo-character placed within an embossed circle (N5-U-63). Three of the characters are 𠄎, the term meaning "clever," which has been embossed backwards (see Fenn 1966:297, no. 511). The reversed character is perhaps the work of an illiterate potter and not the consequence of misunderstanding the technique of making embossing molds. The fourth type of embossed character (N5-EE-176), is poorly executed but may be the character meaning to "read".

The dimensions of the N-5 Traditional Beverage Bottles extend from 16.3 to 17.4 cm. in height, 12.45 to 12.8 cm. in maximum diameter, with outside neck diameters of 5.65 to 5.8 cm. and foot diameters of 8.35 to 8.85 cm. Overall volume capacity ranges from 29 to 32 ounces. The average dimensions of the N-5 Traditional Beverage Bottles are similar to those excavated in Ventura, California (cf. Chace 1976: 515-516 and Table 9.05 in Appendix C).

Comparable bottles have also been found in archaeological contexts in Sacramento, California (Praetzelis 1979b: 22-23); Sonoma, California, at both the Spain Street Refuse area and General Vallejo's "Casa Grande" (Praetzelis 1976: 24-27); Donner Pass, California (Chace 1976:517); Wahkaikm County, Washington (Gehr 1975:130); Lovelock, Nevada (Praetzelis 1979a); and Tucson, Arizona (Olsen 1976:59; 1978: 26-27).

Chace reports that the Ventura bottles were hand-thrown and not mold-made (Chace 1976:517), whereas the Sacramento (Praetzelis 1979b:22), Lovelock (Praetzelis 1979a), and N-5 San Francisco samples were executed with separate molds and then assembled. Although Olsen does not comment on the construction technique, he suggests the following seriation or development pattern: the oldest are wheel-thrown with a glassy, greenish brown glaze not applied to the bottom of the vessel; the next period's bottles exhibit glazing of the entire vessel; and the last period's bottles are manufactured in molds and covered with a dark brown vitreous glaze. The latest group of these vessels post-date 1933 and bear the admonishment, "Federal Law Forbids Sale for Re-Use of This Bottle/ 4/5 Quart" (Olsen 1978:49).

Some of the Traditional Beverage Bottles have molded impressions of characters which are located at mid-body just above the point of tangency, as illustrated by Chace for the Ventura sample (Chace 1976: 515-516, Figure 1a; 3 of the 20 vessels in the Ventura collection had such marks) and by Praetzelis for the Lovelock materials (1979a: Figure 1a). These upper body characters do not seem to be correlated with particular time periods. However, since none appear on the N-5 bottles, the other vessels may either pre-date or post-date the period from 1880 to 1885 established for the N-5 dump site.

While the bottles excavated from the Tucson site still had their paper labels affixed, none from the N-5 site did, if this was indeed the original form of labeling. The Tucson sample also includes several vessels with molded impressions of makers' names on the bases executed in both English and Chinese, bilingual impressions which do not exist on the N-5 beverage bottles. Olsen attributes these bilingual embossed impressions to the fact that "primarily an English-speaking clientele" was being supplied (1978:27). According to him, all of the Tucson bottles contained **Ng Ky**

Py, a potent liquor that was distilled in Hong Kong and Tientsin and then distributed by several dealers in the United States (1978:26).

Contemporary examples of the Traditional Beverage Bottles may contain either a reddish brown **Ng Ky Py** or a clear liquor called **Mei Kuei Lu Chiew**, both varying in alcoholic potency from 96 to 109 proof (see Figure 9.14). Traditional Beverage Bottles made today are manufactured by slip casting, indicated by the mold seams visible from the base to the top on the exterior of the bottles. In these ceramics, continuity of shape is augmented by continuity of size. Although the contemporary vessels are sold in three sizes, the largest closely corresponds to the archaeological examples in the N-5 collection that contains 4/5 of a quart. The ceramic beverage bottles currently manufactured in Hong Kong carefully resemble the shape of the traditional bottles found in the archaeological context, while those produced in Mainland China have been modified to dispense with the splaying at the rim and add a tan or very light brown glaze not present in the earlier samples. In present day Taiwan, the liquor contained in these bottles properly concludes a hearty meal of dogmeat and is reputedly responsible for producing extreme hangovers.

Doubtless, the Traditional Beverage Bottles in the N-5 collection also contained indigenously distilled Chinese liquor that was imported from China and consumed by the Chinese sojourners in the city in the period from 1880 to 1885. Invariably, they also drank Western alcoholic beverages as well, and comparative evidence reported from Ventura's Chinatown substantiates this fact (Greenwood 1978:45). Nonetheless, the presence of the Traditional Beverage Bottles indicates the maintenance of native cultural traditions which included consumption of indigenously produced liquors of high potency.

Anglo Shape Beverage Bottle

In addition to the Traditional Beverage Bottles, the N-5 site contains four complete specimens and the top neck portion of a fifth bottle executed in a Western beer or ale shape (see Figure 9.13b and Appendix C). These ceramic bottles are unique to N-5 and are not found in any other comparable collection of nineteenth-century Overseas Chinese ceramics.

All the Anglo Shape Beverage Bottles are fairly similar, and all exhibit the attributes of the Utilitarian Brown Ware described above. Due

to the thickness of the glaze, these bottles appear to be somewhat rounded in profile and extremely glossy in texture. Only one cork (N5-Z-33), measuring 2 cm. in length and ranging in diameter from 1.3 cm. at the top to 1.1 cm. at the bottom, was found inserted in a bottle. The probability of a wire attachment to hold the cork in place appears unlikely, though an imitation wire may have been constructed in bamboo or some other flexible material. The overall shape of these bottles is generally the same, except that in two examples and the neck fragment, the neck is virtually straight sided, while for the remaining two bottles, the necks exhibit a pronounced bulge (N5-N-376 and N5-Z-290A,B). These bottles clearly appear to have been modeled on the shape of European and American glass beer or possibly whiskey bottles manufactured during the 1870s and 1880s (see Bottle Appendix B).

In keeping with the Utilitarian Brown Ware ceramic type, these Anglo Shape Beverage Bottles possess a clay body that is gray in color with large inclusions and have a dark brown thickly applied glossy glaze. This thick coating enlarges the suspended inclusions, producing pots or wart-like bumps which project out from the surface of the glaze. This bumpy surface texture is unlike any other in the group of Utilitarian Brown Ware ceramics.

Like the Traditional Shape Beverage Bottles, the bottom or base of these clay bottles was originally glazed and then wiped of excess material. Each concave base also has a sharply delineated ring of sand adhering to the periphery. The glaze may be uncommonly thick as a consequence of the method of glazing employed in which the body and base sections were first immersed in glaze and then dried before being turned to dip the neck and mid-section again into the glaze mixture. Any excess glaze was wiped off the base. None of the bases have the embossed characters which are frequently found on the Traditional Shape Beverage Bottles, but the bases do have patches of glassy texture from the wiped glaze. Unfortunately, the lack of broken vessels or sherds prevents full examination of the details of construction.

These Anglo-style vessels are closely similar in size and shape, average 27 cm. in height, 8.8 cm. in maximum diameter, 2.7 cm. neck diameter, and 8.2 cm. base width (cf. N5-Z-290A,B and N5-N-376). They range in volume from 27 to 28 ounces which, perhaps coincidentally,

represents a two to five ounce reduction in capacity from the Traditional Shape Beverage Bottles (see Table 9.05 in Appendix C).

The Anglo-influenced Beverage Bottles are something of an historical archaeological conundrum. Undoubtedly, the bottles carried labels and held a liquid, most likely an alcoholic beverage. At present, however, we cannot determine their exact contents. Most probably they contained the traditional Chinese **Ng Ky Py** whiskey, reflecting the adage of placing "old wine in new bottles." On the other hand, these bottles may have been designed and adapted from Western models in order to package an innovative new product such as a Chinese-made beer or an ale. In any case, it is obvious that these bottles are ceramic copies of nineteenth-century Anglo American glass beer or whiskey bottles. Of all the N-5 Chinese ceramic wares, these beverage bottles reflect the greatest Western influence on ceramic style and shape, items clearly manufactured for the American export market. Moreover, they provide us with some clues as to the degree of acculturation and assimilation that was taking place among the Overseas Chinese emigrant community in San Francisco. Interestingly, if the pace and extent of Chinese acculturation to American life is in some way encoded in these Anglo Shape Beverage Bottles or linked to changes in pottery style, then we must admit that both were short-lived and barely noticeable because these bottles quickly disappeared from the scene entirely. Meanwhile, the Traditional Beverage Bottle continued to flourish, though it, too, was modified by being marked with the appropriate United States federal government warnings about reusing alcoholic beverage containers.

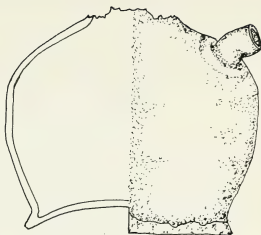
B. Spouted Jars

The Spouted Jars, or "Soy Jars," are presented by 38 vessels which appear in three sizes--small, medium, and large types (see Figure 9.15 and Appendix C). Regardless of size, they all possess similar handmade, wheel-thrown bodies. The squat dome shape has a high, often creased shoulder which is topped by a relatively wide, short neck with a rim which is characterized by a flange or outwardly curving lip. The distinctive short pouring spout sits high on the upper portion of the body, approximately midway between the rim and the shoulder (cf. Chace 1976: 516, Figure 1b; Praetzellis 1979a: Figure 1d; 1979b: 24-25, Figure 43a; and Olsen 1978:36). These spouted containers were corked and used for the transport and storage of a number



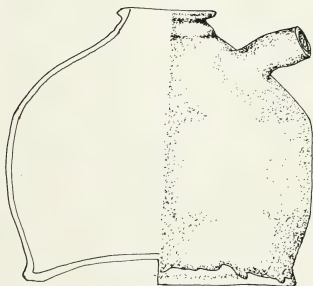
N5·N·785

4CM



N5·N·400

4CM



N5·FF·27

2CM



Figure 9.15: Three Sizes of Spouted Jars. . .The largest number of Utilitarian Brown Ware vessels in the N-5 collection are Spouted Jars. The squat, dome-shaped containers are topped with a narrow corked neck and a distinctive pouring spout which was also corked. Typically, the Spouted Jars held soy sauce, sweetened black vinegar, and molasses. (Jane Dill)

of liquid foodstuffs, including soy sauce, sweetened black vinegar, and thick molasses (cf. Olsen 1976:82; 1978:36).

The progressive steps of manufacture most probably began with the "turning" or hand-wheel construction of the base and lower body portion of the medium and large size vessels. The features of the small examples suggest that the entire bottle was "brought up" to the neck rim opening in only one step. The sharp shoulder angle of the medium and large sizes argues for a joining of separate sections in which the top was attached horizontally to the bottom. The interior of the shoulder joint is quite smooth, insuring a proper seal in order to prevent leakage. In contrast, the interior opening of the spouts are extremely rough.

The spout is made from a short slab of clay worked around a stick. The variation in the length of the spout, as well as the inner profile which varies from round to irregularly oval in cross-section in conjunction with the variation in thickness, suggests that the spout was constructed from extremely malleable clay. The interior of the spout was secured with an additional roll of clay resulting in the slightly raised profile of the vessel shoulder which surrounds the spout. On the interior, the spout retains tell-tale bits of clinging clay. The opening for the spout was made by poking a stick or section of bamboo or wood about 0.8 cm. in diameter from the exterior to the interior of the pot body. The Spouted Jar was then completed with the attachment of the separate neck rim section. This part was secured with a coil or "snake" of clay and then smoothed in a clockwise movement (as indicated with vessel N5-N-360).

The final scraping, or "finishing," of the pot took place when the vessel was leather hard, as indicated by the unglazed base. The depth of the scraping depression left by the rocks being "dragged" away from the clay body while trimming in a concentric motion indicates a very low clay moisture content. In all sizes, the bases are markedly concave, while the bases of the large and medium vessels were trimmed in such a manner to produce a distinct flare.

The interiors of all the Spouted vessels were glazed, though areas of the side walls often left exposed. In fact, the dribbles of glaze evident on N5-FF-29 indicate that it was applied by the "fill-and-slosh-while-pouring" method. It appears that the glaze was poured out from both the rim and spout. An upper body fragment (N5-U-360) indicates that when

the entire exterior of the pot was dipped into the glaze, a small amount penetrated just inside the interior, thus producing a very thick, rich glassy brown glaze around the neck rim. The difference in color and thickness of the glaze between the interior and exterior suggests that the interior glazing solution was a diluted version of the exterior glaze. That dip-glazing was the rule for the Utilitarian Brown Ware is further suggested by the smooth slope of the glazing line near the base (N5-FF-26) and occasional voids in the shape of finger tips where the pot was held while dipping (N5-V-18).

All the Spouted Jars were probably corked, as indicated by the presence of corks in the neck opening of 8 of the 12 small pots. These truncated, cone-shaped corks range in size from 1.6 to 2.4 cm. in length with a diameter of 2.2 to 2.3 cm. at the top narrowing to 1.7 to 1.9 cm. at the bottom. The corks were not secured in any specific manner, and it appears that small corks also plugged the spouts of all of these vessels.

Of the total 38 Spouted Jars along with the 4 rim and 7 body sherds recovered from N-5, 12 fall into the small category, ranging from 8.3 to 8.5 cm. in height with a diameter of 7 to 7.6 cm., an outside neck diameter of 4.15 to 4.3 cm., and a base diameter of 6.7 to 7.0 cm., with a total volume of 6 to 7 ounces (see Table 9.05 in Appendix C).

Unfortunately, the only representative of the medium-size Spouted Jar (N5-N-400) is missing its neck portion, but the vessel probably stood about 10.4 cm. in height with a maximum diameter of 11.6 cm. and a foot diameter of 10.1 cm. It held about 23 ounces of liquid (cf. Table 9.05, Figure 9.15, and the photograph in Appendix C).

The 25 large Spouted Jars form the largest sample category within the Utilitarian Brown Wares unearthed at the N-5 dump site. These pots include variants ranging from 12.35 to 13.5 cm. in height, 14.4 to 14.8 cm. foot diameter, holding approximately 41 to 52 ounces of liquid (see Table 9.05 in Appendix C). An analysis of these Spouted Jars leads us to the conclusion that the concavity of the base and thickness of the body walls affects vessel capacity to a surprising degree.

Given the wide range of sizes for the Spouted Jars from N-5, it seems odd that only the large size of this vessel type has been found in other archaeological contexts. Similar large Spouted Jars have been recovered at Old Sacramento (Praetzelis 1979b: Figure 43a); Ventura,

California (Chace 1976: 517, Figure 1b); Lovelock, Nevada (Praetzelis 1979a: Figure 1d); and Tucson, Arizona (Olsen 1976: 82 and 1978: 36-37). Although the N-5 sample from San Francisco agrees with the average dimensions of the 9 vessels reported by Olsen, the greater variety of sizes of the Spouted Jars from N-5 reflects the greater density and complexity of the Chinese community in San Francisco than elsewhere.

C. Steep-Shouldered Jars

The Steep-Shouldered Jars are most easily identified by the presence of four wing-shaped lugs located just below the rim of a rather ruggedly constructed variety of Utilitarian Brown Ware (see Figure 9.16). This vessel type has been called various things by different authors. Chace refers to this type as Huge Globular Jar (1978: 521-522); Praetzelis uses the same term (1979b: Figures 21b and 25b); and Olsen simply calls it a Large Brownware Jar (1978: 32-33). Historical accounts mention that this type of vessel also had been called Martavan and Pegu after the names of coastal areas of Burma where much of this useful Chinese ceramic ware was imported and traded (Lunsingh-Scheurleer 1974: 39-40, Plates 6 and 7).

The designation "Martavan" or "Martabani" refers to an entire class of pottery wares closely corresponding to the Utilitarian Brown Ware from N-5. In his study of Chinese export porcelain, Lunsingh-Scheurleer notes that the Martavan ceramics consist of:

. . . storage pots made from stoneware covered with a black, brown, or golden-brown lead glaze. The name comes from the harbour of Martaban, corrupted to Martavan where the pots were seen by Arabian travellers. These storage pots were taken from China overland to Bhamo (Burma), to be shipped from there to Martaban at the mouth of the Salween and the Gulf of Martaban or Peg (1974: 39-40).

According to Lunsingh-Scheurleer (1974: *Ibid.*), these vessels were made in the provinces of Kwangtung, Fukien, and Soo-Chou--namely, in those southern districts of China that were home to most of the Overseas Chinese in San Francisco--and exported to many foreign lands.

The earliest extant reference to these large ceramic containers dates from the eighth century during the T'ang dynasty. In several friezes made in that era, these Steep-Shouldered Jars are depicted being used to transport different foodstuffs. Extrapolating from this visual evidence, some of the

jars must have measured well over one meter in height (see Ottema 1946: 145-158). In 1365, the Arabian traveller, Ibn Batuta, first describes these jars in Western literature, mentioning that the daughter of the Indian King Kaylikan presented him with four of these vessels containing ginger, pepper, lemons, and mangoes (Lunsingh-Scheurleer 1974: 39-40). Finally, there is indication that these ceramic jars were used during the 1700s by the East India Company to store fresh water. Apparently, they came in three sizes: whole, three-quarters, and half. However, only one size was still being stocked when Pieter van Dam commented on this vessel type during the later part of the eighteenth century. According to his observations, captains of ships used these huge storage pots measuring over a meter in height for opium, wine, rice, and other foodstuffs, as well as for drinking water and even for holy water drawn from the Ganges River. Obviously, there has been strong continuity of ceramic tradition in the style, shape, and manufacture of these huge globular jars.

The shape of the Steep-Shouldered Jar may be characterized as that of an inverted pear, with an indented and slightly concave base topped with a constricted triangular flared rim. Placed two to three centimeters below the rim are four splayed lugs. These distinctive lugs measure from four to five cm. in length and are primary for distinguishing this vessel type. The lugs seem to have been constructed from a coil of clay affixed to the exterior wall of the pot with a smash of the thumb, leaving a rounded center through which cord could be pulled to tie down a lid. According to Olsen, more recent examples of this pot have lids made of wood, padded with oil-soaked paper, and held in place with hemp cord or split bamboo (1978: 33).

It is for functional reasons that the pots have narrow, constricted tops and bases. Given the fact that they often held liquids, as indicated by the glazing of the interior as well as exterior surfaces and from historic documentation, the narrow bases facilitated the tipping of the vessel in order to pour and empty the vessels. The small size of the rim opening, which just accommodates a hand, in comparison to the overall height and diameter of the vessel, functions to keep the contents from spilling during shipment. Ethno-archaeological studies of contemporary examples of this vessel type show that these ceramic pots were invariably protected in

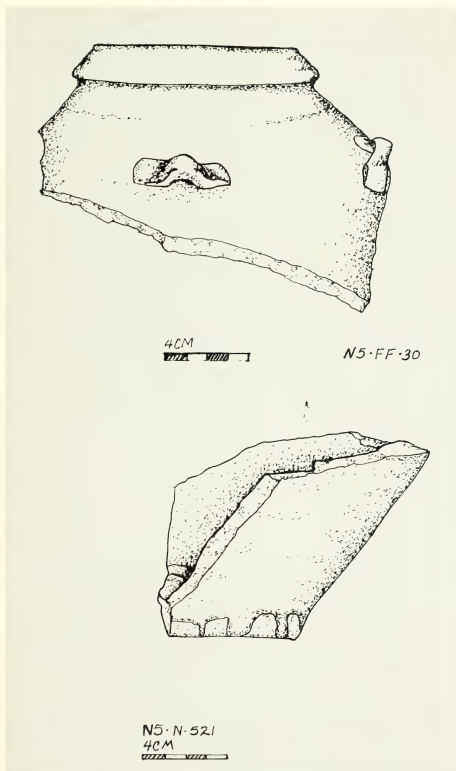


Figure 9.16: Steep Shouldered Jars--Nineteenth-Century Descendants of Tang Dynasty Pots. . . . These Huge Globular Jars are distinguished by the four clay lugs located just below the rim that were used to lash down a lid. Similar-shaped ceramic vessels have been noted from the eighth century and were commented on in the fourteenth century by Arabian travellers. The British East India Company used these types of jars in the 1700s to store water, rice, wine, and opium. Ranging to over a meter in height, they served a comparable function in nineteenth-century Chinatown. (Jane Dill)

transport with a loosely interlaced covering of ratan to absorb the bumping of the containers during movement (see Porter 1979:4).

The rather heavy-duty vessel rim is markedly triangular in profile, and all 12 rim sherds exhibit extreme patterns of wear. This has been caused either by direct mechanical chipping away of the topmost glaze or by the use of a clay-like mastic material to seal the lids to the vessel rim. It should be noted that the rim with the largest diameter (N5-FF-33) has two triangularly indented tiers and thus differs slightly in style from the rest of the others.

As a result of producing the storage vessels on a wheel and crude finishing techniques, there are deep concentric ribs on the interior of each base sherd. Since there are no complete vessels of this type within the N-5 sample, it is impossible to determine if the pots were constructed in sections and joined or simply raised in one action on the wheel. One suspects the latter, given the lack of joint seams on any sherd in the entire sample. The narrow bases were finished on the exterior when leather-hard, as indicated by the drag lines from rocks removed while trimming the bases to their vaguely concave shape.

The Steep-Shouldered vessels in the N-5 collection were glazed on the interior, as well as the exterior with a glazing liquid which varies in finish from glossy to matt and in hue from red to dark brown. In keeping with most of the Utilitarian Brown Ware, the glaze normally ends just above the base. Each bottom displays a single glaze-like circle which suggests that these pots were adhered to a prop or sagger in the kiln with a combination of glaze and sand. As with all of the other Brown Ware vessels, some of the 59 body sherds show evidence of interior dribbles and great variation in color and finish.

The 12 rim sherds from N-5 represent nine separate vessels: 4 rims appear to have been between 8 to 9 cm. in diameter; another 3 to have been 11 cm., and 1 each to have been 13 to 14 cm. in diameter. Among the 9 bases in the sample, the 3 smaller examples range between 11 and 12 cm., while the 6 larger bases are 13 to 14 cm. in diameter (see Table 9.05 in Appendix C).

There may be at least two and possibly four distinct sizes of Steep-Shouldered vessels represented in the N-5 material. This observation is based upon comparison with the lone example from Tucson, Arizona,

which stands 23 cm. in height and has an equivalent rim diameter of 8 cm. with approximately the same size base diameter (Olsen 1978:33). Another similar example from Ventura, California, holds 11 liters and stands 33 cm. in height, 28 cm. in diameter, with a 13.2 cm. rim diameter and 13.4 cm. base diameter (Chace 1976:521). In addition, Chace has found in antique stores and museums complete vessels of this type which are 37 cm. in height and hold about 20 liters (Chace 1976:522).

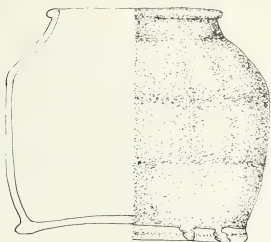
Steep-Shouldered Jars have also been recovered in archaeological contexts in Old Sacramento (Praetzellis 1979b: Figure 21b and 25b) and in Donner Pass sites which date to the 1860s (Chace 1976:522). It is of value to note that the complete jar from Tucson had the remains of an inverted coffee can covering the mouth of the vessel. The coffee can provides tempting evidence that these vessels were reused after the original supply of wine, peanut oil, soy sauce, or vinegar had been exhausted (Olsen 1978: 32-33).

D. Shouldered Food Jars

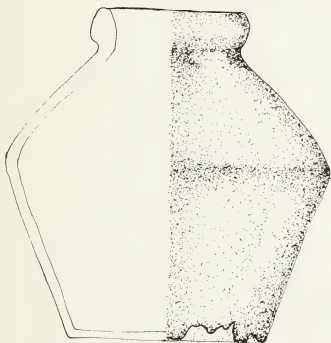
Shouldered Food Jars are best described as squat vessels with a distinctive angled shoulder which leads to a short neck with a wide-mouth rim (see Figure 9.17 and Appendix C). In the historical archaeological literature, these ceramic containers have been called Shouldered Food Jars by Chace (1976: 517-518) and Praetzellis (1979a; 1979b) and Wide Mouth Brownware Containers by Olsen (1978: 31-32). These versatile pottery vessels were made in a wide range of different sizes to hold an incredible array of foodstuffs. Shouldered Food Jars recovered from other sites have included extra-small, small, medium, large, and extra-large varieties. Oddly, however, the N-5 collection has no small or large sizes but does have two examples of somewhat extreme sizes not reported from any other sites (see Table 9.02). One, the smallest variant of this type of ceramic ware, has been designated "extra-small" (N5-N-408) and is nearly identical to the small size Spouted Jars, though slightly shorter and lacking the spout. At the other extreme is an "extra-large" specimen of this vessel type never before described in the literature (N5-M-650). It is reminiscent of a Steep-Shouldered Jar, except that it has a lower shoulder, a longer shoulder angle, a thickly rolled rim, and lacks the characteristic shoulder lugs of the latter vessel type.



N5-N-408



N5-U-333



N5-M-650



Figure 9.17: Versatile Shouldered Food Jars. . Made in a wide range of sizes to hold an array of foodstuffs, these squat, wide-mouthed jars were extremely useful containers. They held viscous types of foods such as pickled vegetables, preserved ginger, soy bean cheese, shrimp paste, salted garlic, salted radish, and pickled onion. (Jane Dill)

The three N-5 examples of the medium-size Shouldered Food Jars have a wide opening with a downward curving flange rim which on cursory observation appears rolled. The rim rests on a short neck which in turn sits on a flat, angular shoulder. The maximum point of tangency is formed by this shoulder which is located on the upper one-third of the body. Due to trimming, the slightly outward curving or splayed base is smaller in diameter than the maximum diameter. No doubt the trimming occurred when the clay body was quite hard, as indicated by the drag lines and smoothed compaction of the clay body around the periphery of the base. As with the large Spouted Jars, the splayed base results from scooping out of the excess clay found on the site of the vessel just above the base. In addition to the method for forming the base, the Shouldered Food Jars are almost identical to the large Spouted containers in a number of features, including base dimensions and the overall shape of the vessel up to the shoulder. In fact, these bottom sections may have been constructed at the same time and the individualized upper portions of the two different vessel types added later.

The glazing procedure appears to have consisted of swirling the glaze around the interior and then pouring it out, often leaving unglazed gaps along the lower section of the interior rim. The vessel was then plunged into the glaze to cover the exterior. Apparently, the unglazed splayed bases allowed the fingers to grip the vessel more easily during immersion.

As in the case of the small size of the Spouted vessels, the extra small size of the Shouldered Food Jar has no angled shoulder, but only a flange rim and a rounded shoulder along with a profile which is slightly indented at the base. In contrast to the concave bases of the medium or large size, the extra-small is virtually flat, as is the base of the extra large size vessel.

In comparison to the medium and large size vessels in this category, the maximum point of tangency of the extra large size of Shouldered Food Jars falls about midway up the vessel, and the base is definitely smaller. The relatively small size of the base, the lower shoulder, and the equivalent size of the rim diameter in conjunction with the heavy rolled or coil rim finish gives the extra large size vessel a distinct silhouette. Furthermore, unlike all other Utilitarian Brown Ware vessels in the N-5 sample, this

extra large size vessel has an undeciphered character painted in a black underglaze stain on the base covering about one-fourth of the area (N-5-M-650).

A complete discussion of the dimensions of the Shouldered Food Jars requires comparisons with data on similar vessels recovered from other sites (refer to data presented in Table 9.05 in Appendix C). The unique extra small sample found at N-5 stands 7.8 cm. in height, reaches 7.2 in maximum diameter with a base diameter of 6.2 cm., and has an outside neck opening of 4.0 cm. with an overall volume of seven ounces (N5-N-408). The next larger size, the small, is not represented in the N-5 sample but is present in both the Ventura, California, and Tucson, Arizona, collections. The six vessels from Ventura range from 10.5 cm. to 11.5 cm. in height, from 11.5 to 12.7 cm. in diameter with a base diameter of between 9.5 and 10.8 cm. and have "orifices" which are 8.0 cm. wide. These small size vessels held approximately one pound (see below, and Chace 1976: 517 and 518: Figure 2a). On the other hand, the Tucson sample averages 10.3 cm. in height with a 6.3 cm. mouth diameter (Olsen 1978:31). Thus, the Tucson sample may include vessels which correspond to a smaller category.

The eight large size containers in the Ventura sample range from 12 to 13 cm. in height and from 14 to 14.5 cm. in diameter, with a base diameter between 12 and 13 cm., a mouth opening of 8 cm., and an estimated capacity of two pounds (see below). Olsen reports that the unstated number of larger size vessels recovered from the Tucson sample were on the average 13.7 cm. in height with an 8 cm. mouth opening (Chace 1976:517; Olsen 1978:31). The three medium-sized Shouldered Food Jars found at N-5 have similar dimensions, except that they possess wider mouth openings. They range from 12.5 to 12.8 cm. in height, 14.8 to 15.1 cm. in diameter, with a 12.9 to 13.3 cm. base width, a mouth opening of 9.6 to 9.8 cm., and a capacity of about 46 to 48 ounces. Thus, the N-5 medium size vessels of this type are slightly smaller than the large sizes from the Ventura and Tucson collections.

The unique extra large vessel found only at N-5 stands 17.5 cm. in height, 17.7 to 17.9 cm. in maximum diameter, with a base diameter of 11.5 cm., a mouth opening of 8.9 cm., and a 70-ounce capacity (N5-M-650). Weight per type of foodstuff varies considerably, however, and the pound sizes presented in this text are those used by Chace (1976). To use a

contemporary illustration, a one-cup measure holds one ounce of cornflakes and 7 ounces of rice or granulated sugar (Jones 1963:141). Thus, the fact that these Shouldered Food Jars held a variety of products which ranged from preserved vegetables, sweet gherkins, soy bean cheese, and shrimp paste (Olsen 1978:32) to other comestibles such as salted garlic, salted radish, salted onion, and pickled lemon, as suggested by a price list printed in San Francisco in the 1850s, would substantially affect the weight of the product contained in the vessel (Chace 1976:519).

There are no lids in the N-5 collection which would have fit and sealed the contents of these jars. According to the published reports, these lids varied greatly in comparison from a fine gray stoneware to a porous, red earthenware which were fired, but left unglazed (Chace 1976:519; Praetzelis 1979b: 23-24). (Drawings of the dish and flanged-shaped lids may be found in Chace 1976: Figures 1c, d, and e; and Praetzelis 1979a: Figure 1c and f).

At the present time, two sizes of Shouldered Food Jars which bracket the medium size have been recovered in archaeological contexts from Ventura, California (Chace 1976: 513, 517-518); Sacramento, California (Praetzelis 1978b: Figure 101d); Sonoma, California (Praetzelis 1976:31); Donner Pass sites, California (Chace 1976:519); Tucson, Arizona (Olsen 1976: 71 and 1978: 31-32, and Figure 6); and Lovelock, Nevada (Praetzelis 1979a: Figure 1b, c, d, and f; original comparative list assembled by Praetzelis 1979b: 24). Only the Lovelock collection has an example of a Shouldered Food container painted with a shop sign or factory marked on the upper portion of the vessel (Praetzelis 1979a, Figure 1e).

E. Straight-Side Jars

Straight-Sided Jars are distinguished by their straight or nearly straight sides with uniquely indented rims. These rims serve as seats for the slightly domed to flat lids with vertical sides (Chace 1976: 519-520, Figure 3c and 3d; Praetzelis 1979a: Figures 2b, 2c, and lid 2d). Although the N-5 sample lacks both the small and large sizes of this vessel type, it includes two rim sherds along with four base fragments and eight body sherds of the huge, or barrel size, of the Straight-Sided ceramic containers (see Table 9.02 and Figure 9.18).

According to Chace, the small and large sizes of this vessel type and the associated lids were executed with relatively thin walls and were probably formed in press molds centered on a potters wheel. The lids are domed with vertical sides, sharp shoulders, and glazed only on the exterior side in the distinctive glossy brown glaze characteristic of the Utilitarian Brown Ware in general. They reportedly are 2.0 cm. in height, 9.5 cm. in diameter for the large size, and 6.6 cm. in diameter for the small size (cf. Chace 1976:521). The specifications for the Straight-Sided Jars themselves from the Ventura collection range from a small, incomplete vessel of an undeterminable height with a diameter of 7.3 cm. to two large size jars, one of which measured 6.8 cm. in height to 8 cm. with its lid and having a 9.5 cm. diameter. Given the lid and jar dimension of the Ventura sample, the small vessels must vary from 6.6 to 7.3 cm. in diameter (cf. Chace 1976:513).

The small and large Straight-Sided Jars are missing from the N-5, Old Sacramento (Praetzellis 1979b), and the Donner Pass sites dating from the 1860s (Chace 1976), but they appear to be part of the Tucson collection where Olsen (1978:33) calls them "Small Brown Ware Jars with Lids," and they are definitely part of the Lovelock, Nevada, sample reported by Praetzellis (1979a: Figures 2b and 2d). Like the Traditional Beverage Bottles, contemporary examples of these Straight-Sided Jars containing "Tungoon Genuine Maltose Packed in Kwangtung" can be purchased for under \$2 in most Chinatowns today.

While the N-5 collection lacks the smaller versions of the Straight-Sided Jars, the huge or barrel size of this vessel type is represented by at least two and possibly four such containers. Extrapolating from the rim sherds, one vessel measures approximately 30 cm. in diameter, with a body thickness of 1.1 to 1.2 cm. at the shoulder or the set for the lid (N-5-L-105); the second one, which is also about 30 cm. in diameter, has a wall thickness from 1.1 to 2.5 cm. at the lid seat or indentation (N5-U-570). The four base sherds which cluster at 33 cm. in projected diameter for the fragments labelled N5-Z-71 and N5-FF-80 and 36 cm. in diameter for sherds N5-F-7 and N5-U-573 agree with Praetzellis' drawing indicating a smaller rim aperture than base diameter (1979b: Figure 12).

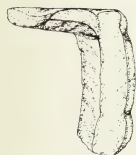
Generally, the huge size of the Straight-Sided Jars appears to follow the primary characteristics noted with the Shouldered Food Jars and the



NS-U-583



NS-U-172



NS-L-263



Figure 9.19: Three Types of Utilitarian Brown Ware Lids. . . These lids covered Brown Ware containers. The small one (center) fit over a ginger jar; the thick lid fragment (bottom) covered the Huge Straight-Sided Jar, sitting on an inset rim opening; and the medium size lid snugly fitted a wide-mouthed Shouldered Food Jar. (Jane Dill)



NS-L-105



NS-U-573



Figure 9.18: Fragments of a Huge Barrel-Shaped Straight-Sided Jar. . . Since these nearly straight-sided barrel-shaped ceramic containers were very heavy when full, they were probably used only in seaport or riverine trade. Contemporary examples of these jars contain maltose sugar and thousand-year-old eggs. They are encased in basketry with convenient plaited handles. (Jane Dill)

Spouted Jars, though lacking their definitive base flare. A thin red wash is presented on one rim (N5-L-105), while a very thin brown glaze is used on the interior and exterior top of another (N5-U-570). The characteristic dark brown glaze begins just below the rim, which resembles an inverted triangle in profile, and stops at or just before the base. In keeping with the other varieties of storage vessels and the Utilitarian Brown Ware in general, the bases are unglazed. On the other hand, the interiors vary considerably as to the application of glaze, slip, or wash. A thin red wash appears on some of the eight body sherds in addition to the thin brown glaze more commonly applied. In other cases the interiors appear to have been left entirely unglazed. Similarly, in the Old Sacramento sample, "the interior is unglazed except for some horizontal splashes on the interior of the rim," and in another example, the "inside and the base are unglazed" (Praetzelis 1979b: Figures 12 and 12a).

Given the enormous and cumbersome proportions of the vessels and their weight when filled, they may have been used only in seaport or riverine locations where transport was not a great problem. The interior glazing pattern suggest their use for foodstuffs which were not immersed in a brine or a liquid, and contemporary examples of such vessels, though modified in details of shape and glaze, contain items such as thousand-year-old eggs and preserved duck eggs. These modern jars are protected with a roughly plaited and interlaced basketry carrier which includes four handles. The jars' heavy, flat lids allow other jars and diversely packaged goods to be stacked on top with stability.

F. Lids

Within the N-5 collection are three distinct types of Utilitarian Brown Ware Lids (see Table 9.02 and Figure 9.19). These include the small "Flared Straight-Sided" Lids associated with ginger jars (cf. Olsen 1978: Figure 7); the large, heavy duty "Straight-Sided with Rim" Lid which most likely fitted on top of the huge Straight-Sided Jars; and a medium size "Flanged Cap" Lid which is similar to the dish-shaped lids found on Shouldered Food Jars as reported in the literature (see Chace 1976:518; Praetzelis 1979a: Figure 1f). (Sized dimensions for these lids appear in Table 9.05 in Appendix C).

Flared Straight-Sided:

The single example of the Flared Straight-Sided type of lid is manufactured with a fine textured stoneware body fired to a light red color. In turn, the entire exterior surface is glazed with a white flecked glaze of brown yellow inclusions (the incense holders discussed below have comparable flecks). As with so many of the Chinese wares, the lid "rim" was obviously placed on sand during the firing to prevent sticking to the kiln shelf. The unglazed interior displays the "drag" lines or pitting from the rock temper inclusions which were pulled from the clay body while trimming.

The lone N-5 example sits 1.35 cm. in height, and has a 4.6 cm. diameter with the flare extending the diameter to 4.8 cm. while the edge is 0.3 cm. in thickness (N5-U-172). The lid probably came from the class of heavy-bodied "Ginger Jars" (see Olsen 1978:35, Figure 7, right, which originally held preserved ginger in a sugar syrup). The six lids associated with ginger jars recovered in Tucson, Arizona, are about 2.5 cm. in height with thickly glazed tops. According to Olsen, these lids were held on stilts or saggars during firing, in contrast to the sand-covered shelf of the N-5 specimen. Though shorter than the Tucson sample, the N-5 lid was probably perched loosely on the open unglazed section of a ginger jar and held in place by the force of a sticky, waxed paper and split bamboo covering (see Olsen 1978: 35-36).

Straight-Sided with Rim:

The Straight-Sided with Rim variety of lid has a rolled or slightly thickened bulge at the rim (Praetzelis 1979b: Figure 78). The three fragments of these lids with the N-5 collection are extremely flat along the top, but exhibit a subtle curve to the side wall and a pronounced indentation to the base angle. The sole exception to this shape (N5-U-328) has no base indentation, and the edge lacks the characteristic bevel, while the side wall is considerably less curved than the others.

These lids are fashioned from a stoneware fabric which varies from a normally fine (N5-U-569 and N5-U-328) to a noticeably rough paste (N5-L-263) with sand-like inclusions. The clay body ranges in hue from a light red to gray in color, while the overall glaze color may be a reddish (N5-U-569), brownish (N5-L-263) or even brown-black in hue (N5-U-328).

The very thin application of glaze collects or pools at the exterior base angle where the lids were placed on sand while being fired. The thinness of the layer of glaze suggests that the potters wanted to achieve a lid impervious to liquids, but rough enough to "grab" the vessel as well as unglazed and fired wares.

Measurements for these lids, which resemble the shape of flower pot catch basins, are about 5 to 5.4 cm. in height and from about 35 to 36 cm. in diameter. Side wall thickness varies from 0.9 to 1.1 cm. (N5-L-263 and N5-U-328), while the most generous is 1.4 to 1.5 cm. in thickness (N5-U-569). The flat surface of the expansive top is 0.7 cm. thick toward the center of the lid.

The extremely generous dimensions of the fragments suggest that the lids covered the huge size Straight-Sided Jars (see above). The rim indentation and the rim thickness of these jars could easily support the lids, which require two hands to remove, and the bulk as well as the weight would be a great advantage in keeping the jars' contents secure during shipping and storage. In addition, the heavy flat top would lessen the chance of breaking the jaw when other items were stored on top of it.

Chace reports that the lids of the huge barrel-shaped Straight-Sided Jars, which resemble inverted milk pans, are found with these ceramic vessels at sites in the Donner Pass and Langtry, Texas (Chace 1976:722), both of which are associated with railroad construction camps. One lone example of this lid type from Old Sacramento has the impressed Chinese characters which may be interpreted as "Made in the Empress Shop" and "This is the Property of the 'Xin Gong' Guild" (Praetzelis 1979b:78). Virtually identical lids are found on contemporary examples of the huge barrel-shaped jars which can be bought for about \$20 in Oakland and San Francisco Chinatowns. All available evidence, then, strongly indicates that the Straight-Sided with Rim lid sherds in the N-5 collection most likely covered the huge Straight-Sided Jars.

Flanged Cap:

The five examples of the Flanged Cap variety of lid may be a type conceivably associated with the dish-shaped lids capping the Shouldered Food Jars (see the illustrations in Chace 1976:518, Figure 2e and Praetzelis 1979a, Figure 1f). Unfortunately, none of the lids fit any vessel recovered

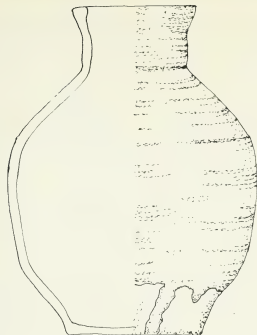
from the N-5 dump site, since the smallest lid is 2.1 to 2.2 cm. in height, 9.8 cm. in diameter at the base angle, with a final "rim" diameter of 9.6 cm. (N5-U-583), while the largest lid of this kind measures 2.1 cm. in height with a 10.1 cm. diameter at the base angle and 10.0 cm. diameter at the "rim" (N5-M-333).

All five specimens are made of a whitish-cream stoneware fabric and were probably manufactured by the "slab" technique and rolled like pastry dough. Alternatively, these lids may have been made in press molds. As with the Utilitarian Brown Ware in general, the concentric patterning of the pits made by rock inclusions when pulled during the trimming process indicates that trimming must have occurred on a tournette or similar device.

Among these Flanged Cap lids is one matt or dull gloss glaze subtype (N5-M-333) which was immersed into the glaze just above the lid "flange." The other four glassy lids are generally glazed to just below the cap projections. The matt example is thick, with a patterning or specklings of the glaze combining white with a brown-black (see the discussion of the incense holder below). The matt lid is also distinctive, in that the top is slightly more curved and the sides flare less obliquely.

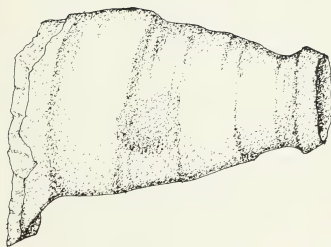
G. Thin Brown Jars

Completely unique to the N-5 dump site are a collection of 12 relatively small, high-necked, ovoid ceramic jars (see Figure 9.20 and Appendix C) which have not been found in any other comparable site in California or the western United States. Referred to in this chapter as "Thin Brown Jars", these small vessels may, in fact, be a kind of bottle. They share many similarities with other Utilitarian Brown Ware types and vary in color from red to grey. Their clay body has been manufactured from a fine stoneware paste with such small temper inclusions that magnification is necessary to determine their presence. These Thin Brown Jars may have contained some sort of alcoholic liquor or some food stuff small enough to fit through rims measuring from 3.4 to 3.7 cm. The interiors are unglazed, although there is no reason that they could not have contained liquids of various viscosities. Contemporary vessels available in San Francisco's Chinatown make it likely, however, that the specimens in the N-5 collection probably contained a type of alcoholic beverage.



N5-U-367

2 CM



N5-N-368

2 CM



Figure 9.20: Ovoid-Shaped Thin Brown Jars. . .Measuring only 3-1/2 inches in height, these egg-shaped Thin Brown Jars must have contained some exotic food-stuff, spice, or alcoholic drink. These jars--or possibly bottles--have been found in no other comparable archaeological deposits. Despite the thinness of their ceramic walls, they have survived the ravages of time in the dump. (Jane Dill)

Figure 9.21: Handle From a Chinese Medicinal Tea pot. . .This hollow ceramic handle from the N-5 dumpsite was most likely once attached to a high-collared Chinese herbal or medicinal tea pot. These pots are still widely used today, indicating the maintenance of traditional systems of Chinese medicine and herbal healing. (Jane Dill)

The Thin Brown Jars type appears to have been produced on a wheel, judging by the rather consistent horizontal ridges evident on the exterior clay body. The variation in shape and size as well as irregular indentations and occasional fingerprints make the use of a wheel even more plausible, such irregularities often resulting from moving the completed vessel from the wheel while the clay is pliable. The flat base and rims are most likely the consequences of a quick cutting motion using a wire or cord while the jar was still damp, and the faint patterning on the bases suggests that the containers were dried on either sand or rice straw chaff.

All the jars (except N5-N-368 and N5-N-371) have areas with sand adhering at the point of maximum tangency at the shoulder in two, three, or even four equidistantly-spaced areas. Sometimes this roughened area shifts from the shoulder to just below the shoulder and onto the base, suggesting that these vessels came into contact with the kiln walls or shelving (Frank Sternad, personal communication). In general, the glaze on these ceramic vessels is extremely glassy and thin, with drips forming within the glazed area, ending from 2 to 3.8 cm. from the bottom of the vessel. The translucency of the lighter yellow-brown tones and even of the dark reds and browns in conjunction with the thinness of the glaze exaggerates the wheel-produced striations. In comparison with the chocolate-like hues of most of the other Utilitarian Brown Ware vessel types, the combined effect of the glaze and striations creates a texture reminiscent of rattan. The sole exception to this glazing quality is one specimen (N5-N-372) whose glaze is less translucent, exhibits fire smoking from the kiln atmosphere, and reaches to the base. These variant attributes of color and glaze applications may be the result of production at a different factory or at a different time.

The measurements of these jars average 8.6 cm. in height, with a 3.4 to 3.5 cm. rim diameter and 6.9 maximum diameter at the bulbous shoulder, terminating with a 3.9 cm. base diameter. When filled to just below the neck, the jars hold 5.5 to 7 ounces (see Table 9.05 in Appendix C).

Although additional research is required to fully establish the content of these small ceramic jars, it appears likely that they held an alcoholic beverage, perhaps a traditional Chinese whiskey. The fact that none of this type of Utilitarian Brown Ware is found in any other archaeological

context in America may mean that its contents may have been too costly or the structure of the ware too thin and fragile to have been distributed to other remote areas where nineteenth-century Overseas Chinese were living and working. Since the jars have not been recovered at any other site but the N-5 dump in San Francisco, it seems likely that the contents of these Thin Brown Jars was consumed primarily by the urban Chinese community residing in the city in the 1880s.

H. Medicinal Tea Pot

A wheel-thrown teapot handle is presently the only evidence of a high-collared Utilitarian Brown Ware vessel that was in use during the latter part of the nineteenth century (see Figure 9.21). The handle appears to have come from one of the large sizes of Herbal or Medicinal Tea Pots, contemporary examples of which can be seen in stores selling Chinese housewares and dry goods.

Of generous proportions, this fire-sooted handle (N5-U-367) extends 8.9 cm. in length, is 0.4 cm. thick, and tapers from 5.1 cm. to 2.7 cm. in width. The N-5 handle and the present day Medicinal Tea Pots exhibit a number of similarities, such as the use of a whitish-cream color stoneware body with virtually no inclusions; the spout-like handle shape which is attached at an upward oblique angle to the side wall of the vessel; the deep grooves which indicate that the handles are separately wheel thrown, the slightly irregular handle shape caused by moving the handles before they have fully dried; the beveled angle of the tapered handle end; and the evidence of a dark brown glaze on the interior. In the N-5 specimen, the glaze parallels the underside of the handle.

Only one other example of a comparable vessel that might be a Medicinal Tea Pot has been recovered in California (Praetzellis 1979b: Figure 67c). This pot from Old Sacramento lacks the diagnostically important handle, but it has curvilinear flare to the collar similar to the contemporary specimens of this ware type.

It is important to note that the probable existence of the Medicinal Tea Pot in the N-5 sample reflects not only the maintenance of traditional Chinese foods, food ware, and food practices imported into America over a hundred years ago, but also that the indigenous system of Chinese

medicine was part of the cultural heritage transferred to this country at the same time.

I. Missing Vessel Types

Although the N-5 collection of Chinese ceramics contains vessel types not found elsewhere in the United States, a few kinds of Utilitarian Brown Ware which have been recovered from other comparable sites are missing from the N-5 sample. These deserve brief mention here.

Squat Bulbous Jars:

The Squat Bulbous Jars described by Olsen for the Tucson, Arizona, sample are missing from the N-5 collection, as well as from the Ventura, Old Sacramento, Donner Pass, and the Lovelock, Nevada, sites. According to Olsen, this one-pound brown-glazed jar stands 9 cm. in height, has a mouth opening diameter of 5.5 cm., and is 12.3 cm. in maximum body diameter (1978:37). These Preserved Salted Vegetable Containers, as Olsen prefers to call them, had paper labels attached which revealed that the contents had been salted cabbage and garlic packed by the Kung Wo company of Hong Kong under the brand name of "Flying Fish" (Olsen 1978: Ibid.). Contemporary examples of both the jar type and product are still produced in Tsientsin and available in Chinatown.

The absence of this vessel type for the sites dating from the 1860s through the 1880s and even into the 1890s may reflect the use of the Shouldered Food Jars or the huge size Straight-Sided Jars for the transportation of the preserved salted vegetable foods. On the other hand, it is possible that this particular product, the garlic-laced cabbage, was a foodstuff preferred by Chinese emigrants from the northern and not the southern provinces of China and, therefore, that sites in America inhabited by southern Chinese would show little remains of food preferred by northern Chinese. This absence would then reflect the historical fact that the vast majority of Chinese emigrants to America came from southeastern China and that the fewer northern Chinese arrived later in time. The issue requires further study, but it illustrates how historical archaeology and vessel types--even missing vessel types--can indicate something about ethnicity and the composition of past ethnic communities.

Pans:

Another important variety of Utilitarian Brown Ware that was not recovered from the N-5 dump site is the ceramic Pans or Earthenware Food Vessels as Olsen labels them (1978:34), or, in Chinese, *shí běn tóu*. Described as low, steep-sided bowls in the Tucson, Arizona, sample, these bowls are covered by a thick brown glaze which coats the interior and may extend over the entire interior or only down to the flanged ridge of the exterior. This ridge projects at the midpoint of the vessel and runs around the circumference, aiding in the nesting or stacking of the vessels so that the bases do not rest against each other (Olsen 1978:34). Chace notes that the four Pan fragments from Ventura, California, are very thin with a thickened rim as well as the ridged circumference, and he suggests that the use of a press mold on a potters wheel or tournette was the likely mode of manufacturing these ceramic wares (Chace 1976:521). The average dimensions of the Pans provided by Olsen are 4.5 cm. in height and 15 cm. in diameter (1978:34), figures closely agreeing with the Ventura fragments reported by Chace which measure 4.4 cm. in height and 14.3 cm. in diameter (1976:520: Figures 3a and 3b). In addition, four Pans were recovered from Lovelock, Nevada; Praetzelis illustrates a small version of this type of vessel (1979a: Figure 2a).

Contemporary shops in Chinatown selling household goods offer a wide selection of these pans stacked one on top of the other and arranged according to the many different sizes. Used both for storage and preparation of food (see Olsen 1978: Ibid.), they were favored for cooking herbs and greens (Chace 1976:521), and they continue to function as multi-purpose vessels which are mandatory for the proper preparation of traditional Chinese food.

In sum, the Utilitarian Brown Ware ceramic vessels recovered from the N-5 dump site represent the containers for storing and preparing traditional Chinese foods. However, the second major component of the N-5 collection, the more numerous stoneware and porcelain Tableware, reflects aspects of the serving and eating of the authentic foods themselves. It is to these widely varied ceramic wares that we next turn.

CERAMIC TABLEWARE--TYPE II

General Ware Descriptions

The more than 400 discrete Chinese ceramic Tableware artifacts from N-5 have been categorized into four sub-types based largely on "fabric" or clay body material, ceramic design, style, pattern, and glaze. Among this ceramic Tableware is: (1) Stoneware; (2) Celadon Ware; (3) Enameled Flower Ware (Four Seasons Pattern); and (4) various styles of Miscellaneous Tableware. Within each of these four sub-categories are examples of different sizes and styles of wine cups, tea cups, rice bowls, serving bowls, shallow dishes, large plates, and ceramic spoons. Porcelain tea pots and soy sauce serving vessels are also included, as well as many unique vessel shapes found only in the N-5 Chinese ceramic Tableware sample. The different types of Chinese Tableware and the minimum number of each vessel type found at the N-5 dump site appear in Table 9.03 (see below).

Details regarding the nature of the various Tableware clay bodies and the mode of manufacture are presented for each of the main sub-types identified. Furthermore, wherever possible we examine the different design features and function of each artifact type and offer a careful analysis of relevant ceramic factory marks and Chinese characters found on the Tableware items. Information regarding vessel size, shape, and other vital dimensions are also included, though greater detail for representative samples of each ware type, along with photographic plates, appear in Appendix C.

A. Stoneware

Three Circles and Dragonfly Pattern:

The Three Circles and Dragonfly pattern is one of the most easily recognizable designs used to decorate nineteenth-century Chinese common Tableware (see Figures 9.22, 9.23, and C.05 in Appendix C). Discovered in several archaeological sites, it has been described by Chace (1976:523; Figure 4a), Greenwood (1978:46), Olsen (1978:16; Figure 3), and Praetzelis (1979a: Figure 2; 1979b: Figure 4a). At N-5, this type of stoneware and design pattern is represented by 61 vessels, 22 rim sherds, 8 body sherds,

TYPE II--CERAMIC TABLEWARE

N-5 Report Category		Other Terms In Use*	Minimum Number of Vessels
A. Stoneware (75)			
1.	Three Circles and Dragonfly Pattern (61)	Swatow; Blue Flower	
a.	Rice Bowls		60
b.	Shallow Dish		1
2.	Bat Pattern (shallow dish)		3
3.	Knot Pattern (shallow dish)		2
4.	Swirl Pattern (9)	Double Happiness	
a.	Covers (porcelain)		2
b.	Bowls (one porcelain)		7
B. Porcelain			
1.	Celedon Ware (148)		
a.	Wine Cups		16
b.	Tea Cups (67)		
	(1) small		1
	(2) large		66
c.	Rice Bowls (42)		
	(1) small		2
	(2) large		40
d.	Shallow Dishes (13)	Dishes; Flat Plates	
	(1) small		9
	(2) medium		1
	(3) large		3
e.	Plates (3)		
	(1) small		0
	(2) medium		1
	(3) large		2
f.	Spoons		7
2.	Enameled Flower Ware (Four Season Pattern) (138)		
a.	Wine Cups		21
b.	Octagonal Tea Cups		9
c.	Rice Bowls (15)		
	(1) small		11
	(2) large (high sided)		4
d.	Serving Bowls (5)		
	(1) small		0
	(2) medium		3
	(3) large		2
	(4) unknown size		24
e.	Shallow Dishes (38)		
	(1) small		15

TABLE 9.03 (continued)
TYPE II--CERAMIC TABLEWARE

N-5 Report Category		Other Terms In Use*	Minimum Number of Vessels
<hr/>			
e.	Shallow Dishes (continued)		
	(2) medium		4
	(3) medium to large		16
	(4) large		3
<hr/>			
C.	Miscellaneous Tableware (81)		
1.	Tea Cups (see Appendix C)		10
2.	Bowl Covers		8
3.	Rice Bowls (see Appendix C)		11
4.	Tea Pots (9)	Cylindrical Tea Pots	
	a. white		3
	b. cobalt		4
	c. characters & figures (Six-sided Tea Pots)		2
5.	Tea Pot lids (7) (see Appendix C)		
	a. white		4
	b. cobalt		3
6.	Wine or Soy Serving Vessels (9)	Spouted Pots	
	a. small		1
	b. large		8
7.	Unique Vessel Shapes (see Appendix C)		8
8.	Miscellaneous Sherds (see Appendix C)		19
<hr/>			
TOTAL:			442
<hr/>			

Chace 1976; Olsen 1978; and Praetzelis 1979b.

and 3 additional fragments from the feet of indeterminate types of vessels.

The clay body of these vessels is a form of porcelainous stoneware which is a semi-opaque ceramic material ranging in color from gray to gray-white and lacking the characteristic translucency of porcelain (cf. Praetzellis 1979b:14). More specifically, the clay body varies from an almost white color to dark grey, generally exhibiting numerous cracks or fissures. The underglaze paint or stain appears blue in hue with a greenish cast to the glaze reminiscent of Celadon Ware. Six of the bowls are charcoal gray in color with a decidedly green cast to the glaze, making them slight exceptions to the more common grays with a blue cast to their glaze and the familiar handpainted cobalt blue pattern. Although the entire vessels with the exception of the feet are glazed, the glaze is often pitted or has bump protrusions with sand adhering to the feet of the vessels.

The pattern itself has been given various names such as Three Circles and Dragonfly because of the stylized geometrics and insect depicted. The alternate name Swatow Ware is derived from the main place of its manufacture, and Blue Flower Ware is based on the Chinese name for these bowls, *gǐng hu wǎn*, which literally means "Blue Flower Bowl". Reportedly, this pattern has been produced without major stylistic modifications since the Ming dynasty (1368 to 1643). Extremely popular in Shantou in southern China where it was manufactured, it was transported to the coast and shipped from Canton to numerous overseas destinations (cf. Olsen 1978:15).

The 60 rice bowls and the 1 shallow dish recovered from the N-5 dump site display considerable variation in the execution of the pattern and the basic shape of the vessel. Nevertheless, the key elements in the design are the three circles, the dragonfly, and a highly stylized marsh pattern. The three circles can vary from being small, tightly enclosed circles to loosely-scribbled irregular curved lines. More controversial is the dragonfly motif, which has been interpreted in several ways. According to Praetzellis, the dragonfly is actually a stylized form of the Chinese character, *chin*, which pictographically both represents and signifies a mushroom (1979:30), and *ling chin*, the "divine fungus", is the symbol of longevity and immortality (Chavannes 1922:22). Others see in this same figure a sting ray, a "design element whose exact nature is open to question"

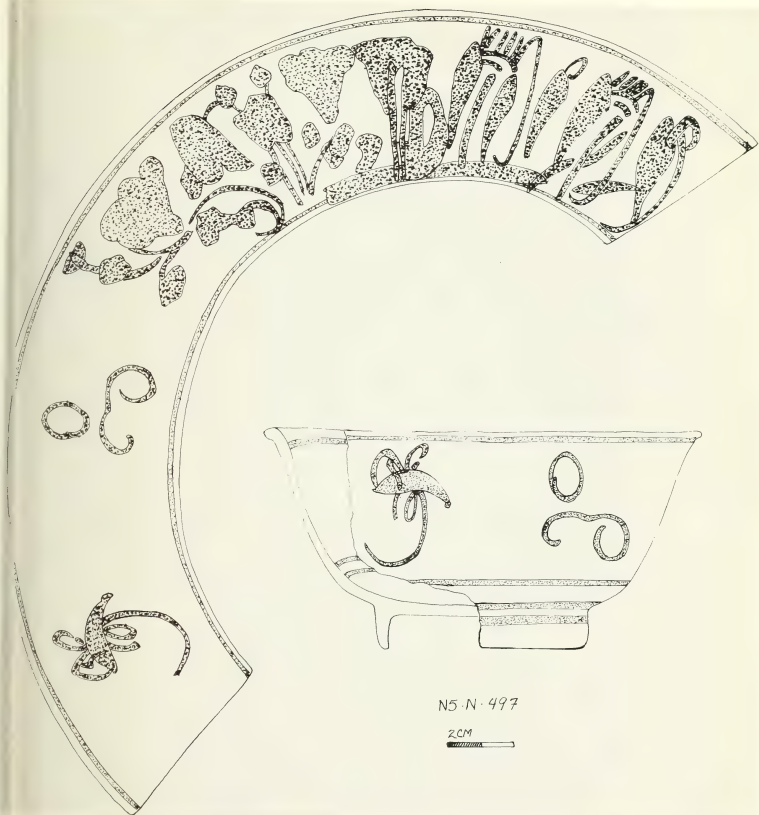


Figure 9.22: Three Circles and Dragonfly Patterned Rice Bowl. . .These predominately grey-green stoneware Rice Bowls were widely used in everyday food consumption. In the side view the three circles are the curved lines to the right, while the so-called dragonfly is to the left. The dragonfly has been variously interpreted as the Chinese Character **Chin**, signifying and resembling a mushroom or the divine fungus of immortality. The rest of the pattern is a stylized rendition of a marsh. (Jane Dill)

(Julia F. Andrews and Holly Holtz, personal communications). The third aspect of the design is a rigidly formulated marsh scene, which extends half-way around the outside of the vessels. Often the marsh may have anywhere from five to eight broadly-stroked lines or leaves drawn to the right of several contiguous flowers. The entire panel of circles, dragonfly/fungus, and marsh is bordered by a single encircling line located just below the rim with another two or three lines applied to the base angle at the juncture of the foot (cf. Chace 1976: Figure 4a).

In contrast to the exteriors, the bowl interiors are usually simply decorated. They often have an encircling horizontal line at the rim, another two just above the base angle, and a mark in the center of the well. These well marks are composed of dots, commas, and V-shapes as well as curve combinations, though they never exceed a total of four marks in any one bowl. Olsen speculates that these well marks "appear to be personal inscriptions made by one potter or kiln to differentiate their products and are not composed of Chinese characters" (1978:16).

Within the N-5 sample, nine of the Three Circles and Dragonfly stoneware bowls possess elaborately executed Chinese characters located on the base or underside of the foot. Three of these bowls exhibit a two-character mark interpreted as **ch'uan yu**, or "complete jade" (N5-M-542, N5-N-495, N5-N-546) (refer to Fenn 1966:118; Julia F. Andrews and Holly Holtz, personal communications). Another three of these bowls have a different two-character mark signifying either "wood" or "talent" which cannot be adequately deciphered because of blurring (N5-P-195, N5-P-212, N5-U-604). Of the three remaining marked bowls, one has the two-character mark **yung ho** meaning "eternal peach" (cf. Fenn 1966:641); another (N5-L-270) has a blurred double character that is unreadable; and the last (N5-N-204) has a single character for the word, "melon" (Julia F. Andrews and Holly Holtz, personal communications). These five sets of ceramic marks may be attributed either to a particular factory, a region, or perhaps an individual potter.

In shape, these stoneware bowls have a lipped rim and side walls that are either straight and outward flaring or slightly curved; the sides are attached to a foot ring or pedestal. Chace mentions that all the bowls from Donner Pass sites dated to the early 1860s have curved, unshouldered sides, while those dating to 1870-1910 from Ventura, Tucson, and Langtry,

all have straight sides. Based on this, he proposes that the curved-sided vessels are earlier and that the straight-sided bowls were introduced after the 1860s (1976:523). Since both curved- and straight-sided Three Circles and Dragonfly bowls have been recovered from the N-5 San Francisco dump site which dates from 1880 to 1885, and, furthermore, since it is difficult to distinguish curved from straight sides in all 60 bowls in the sample, it seems more likely that the shape differences are simply a result of manufacturing process and not a deliberate design modification over time.

In size, the N-5 collection of stoneware bowls are designated small and large. The smaller bowls, of which there are only three, range from 5.1 to 6.0 cm. in height, 12 to 13 cm. in maximum diameter, and 6.1 cm. in foot diameter; the 33 larger bowls vary from 6.3 to 7.3 cm. in height, 13.7 to 15.0 cm. in maximum diameter, and 6.8 to 7.4 cm. in foot diameter.

All of the Three Circles and Dragonfly vessels were used as individual rice bowls by Chinese emigrant laborers, an observation based on the fact that the rough pitting and glaze irregularities are associated with the manufacture of cheaply made, popular Chinese ceramic export tableware. In addition, similar bowls appear in a rare photograph of Chinese truck farmers in Berkeley published in a fruitarian nutritional study conducted in 1899. In this particular photograph, six Chinese agricultural workers are shown eating food from individual Three Circles and Dragonfly bowls, while a larger Four Seasons Pattern vessel is being used as a serving bowl (Jaffa 1899-1901; Plate 1; see Figure 9.03).

Although the vast bulk of the Three Circles and Dragonfly stoneware ceramic vessels are individual rice bowls, the N-5 sample has one example of a shallow dish (N5-I-272) with the same design motif (see Figure 9.23). The dish stands only 2.3 cm. in height, extends about 17 cm. in rim diameter, and is approximately 11 cm. in foot diameter. The exterior side wall has the standard single line beneath the rim and two lines located just above the foot. Unfortunately, only one-fourth of the original vessel remains, just showing the marsh portion of the pattern. This indicates that other vessel types were also being manufactured with the same clay fabric, glaze, and design.

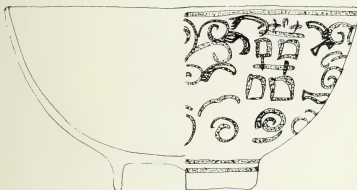
Bat Pattern and Knot Pattern:

The N-5 collection contains five examples of porcelaneous stoneware



N5-T-48

20cm



N5-T-48

20cm

Figure 9.23: Three Circles and Dragonfly Shallow Dish. . While 60 Rice Bowls designed with the three circles and a dragonfly were found, only 1 fragment of a Shallow Dish possessing the pattern was retrieved. (Jane Dill)

Figure 9.24: Swirl or Double Happiness Stoneware Rice Bowl. . Many Rice Bowls were beautifully decorated in a cobalt blue Swirl design. The Chinese character **hsi**, meaning "double happiness," was often included as a salutation in this blue design which has been described as a "swirling inferno" or a "front-faced dragon." Far fewer Swirl than Three Circles and Dragonfly bowls were found at N-5, and it is thought that the Swirl bowls, which are found at the earliest Chinese sites in California, were replaced by the somewhat sturdier Three Circles and Dragonfly bowls. (Jane Dill)



N5-T-48

20cm



N5-T-48

20cm

plates or shallow dishes decorated with either a Bat or Knot pattern handpainted with a cobalt underglaze. Similar to the other sub-types of porcelainous stonewares, the Bat- and Knot-patterned vessels display the same basic color combination of a blue to bluish green glaze with a charcoal gray to gray ceramic body color. However, these ceramics are distinguished from both the Three Circles and Dragonfly and the Swirl or Double Happiness stonewares chiefly by their uniquely patterned design and by the presence of a central stacking ring.

Although the two designs are extremely stylized, they resemble bats and knots, respectively. The Bat pattern consists of two curvilinear handpainted elements, reminiscent of the outstretched wings of a bat, which are placed equidistantly from each other on the exterior of the vessel. Traditionally, the bat signifies "good luck" or "good fortune," and it is this sentiment that is being conveyed on the stoneware dishes. The Knot pattern, on the other hand, looks essentially like a rectangle with crossed, stepped diagonal lines, and there is some similarity between the Knot design and a swastika referred to in Chinese as **wantzu**. Hannover (1925:29) and Chaffers (1946:343) discuss this formalized motif. Like the elements making up the Bat pattern, the series of Knots are equidistant from each other. Finally, several of the Bat and Knot shallow dishes have a central rectangular character or symbol that has not been deciphered.

In addition to their distinctive designs, these shallow Bat and Knot dishes are unique because of the presence of a central stacking ring which none of the other stoneware or porcelain Tableware in the N-5 collection possess. It is interesting to note that ceramic vessels with comparable stacking rings reputedly have been found in Vietnam and Thailand (Stephen L. Little, personal communication). The straight flaring sides of the dishes sit upon a ring foot or base which is left unglazed to prevent the dish from sticking to the kiln shelf or to other dishes during firing. The stacking rings consist of a band of clay about 1 cm. wide at the base angle of the dish which is thinly glazed or unglazed. Apparently these rings allowed other vessels to be stacked, increasing the number of pieces that could be put into a kiln at one time.

Neither Chace, Olsen, nor Praetzelis has described or illustrated any ceramic vessel comparable to either the Bat or Knot pattern ware. Nor have any of the specialists studying the Ventura, Tucson, Sacramento,

and Lovelock collections of nineteenth-century Chinese ceramics mentioned any vessel type exhibiting the unique unglazed central stacking rings. For this reason, it is important to catalog the dimensions of this type of porcelaneous Tableware found in the N-5 collection.

The N-5 dishes range from a small size Bat dish with a 1.6 cm. height, a 9.7 cm. maximum rim diameter, and a 5.3 cm. foot diameter (N5-EE-62) to a large size Bat dish with a 2.0 cm. height, a 13 cm. rim diameter, and a 7.05 cm. foot diameter (N5-M-368 and N5-M-384). The slightly more generous small Knot dish is about 2.5 cm. in height, 14.5 cm. in maximum diameter, and 8.1 cm. in foot diameter (N5-M-195); the large size is only a fraction larger. In comparison with the shallow dish of the Three Circles and Dragonfly pattern, one of the Knot dishes is only 2.3 cm. in height with a maximum diameter of 17 cm. and a foot diameter of 11 cm. (N5-I-272).

Swirl or Double Happiness Pattern:

A fourth Tableware pattern designated Swirl by Praetzelis (1979b:29; Figures 21c, 21d, and 41d) or Double Happiness by Chace (1976: Appended Note) is a cobalt blue handpainted pattern found on porcelaneous stoneware rice bowls and bowl covers (see Figure 9.24 and Figure C.06 in Appendix C). It occurs in nine vessels in the N-5 collection, seven of which are gray stoneware bowls with the design executed in cobalt blue and glazed to achieve a blue tone. The one exception to the bluish coloration is a bowl with gray underglaze and a greenish cast to the glaze (N5-M-171). In addition to the stoneware bodies, the collection holds one incomplete porcelain rice bowl (N5-U-615), as well as two porcelain covers, both of which are executed with a double line pattern instead of the more common single line (N5-M-271; N5-Y-43; and sherd N5-M-531). The porcelain rice bowl and covers were probably matched, since the fabric, size, and double line execution are similar. The Swirl or Double Happiness style ceramic Tableware, which was manufactured in the vicinity of Canton, was once very common, but since the Chinese character for "double happiness" appears in several other designs, the precise pattern name "Swirl", introduced by Praetzelis (1979b), is preferred here because it is more narrowly applicable to wares found in the N-5 collection.

In the pattern, the character for double happiness, **hsi**, is repeated

three times and is interspaced with a complex "swirling inferno" or "front-faced dragon" (see Fenn 1966: 161 for discussion of the Chinese character). The entire panel is delimited by either a single heavy line or two thinner encircling lines placed on the foot of the vessel. Three of the stoneware vessels also have characters handpainted on the underside of the base (N5-I-2; N5-T-48; and N5-Y-9), while the porcelain bowl and its cover fragment have rectangular seal-like marks (N5-U-615 and N5-M-271). These characters and ceramic marks are discussed below.

The Swirl-patterned bowls range from a height of 5.5 to 5.8 cm. with a 11 to 14 cm. rim diameter and a 5 to 5.3 cm. foot diameter. Although the only porcelain bowl in the sample no longer has an intact rim, it must have been at least 9 cm. in diameter with a 4.2 cm. foot diameter (N5-U-615). One of the incomplete bowl covers has a 3.2 cm. height, a 9 to 11 cm. rim diameter, and a 3.9 cm. foot diameter (N5-M-271).

Of the seven stoneware Swirl-patterned bowls, three have paired Chinese characters painted on the bases. These characters, arranged on top of each other, are probably factory brand names, the name or designation of the kiln, or perhaps the name of an individual potter. Each example is unique. One (N5-I-2) has the character **p'i**, or "great," with the character **ho**, or "crops," below, forming the phrase "great crops" (cf. Fenn 1966: 403 and 154, respectively). The second example (N5-Y-9) places a **chi**, or "auspicious," above a **yu**, or "jade," to compose the phrase, "auspicious jade" (cf. Fenn 1966: 34 and 647). Of the last set of characters (N5-T-48), only the top one, **chen**, or "true," can be deciphered (cf. Fenn 1966:24; and translations by Julia Andrews and Holly Holtz). It is also possible that these bowl marks may be salutations expressing good wishes (Honey 1927:110). Whatever their intents, the presence of these marks will help in the identification of similar nineteenth-century Chinese ceramic vessels found in other archaeological contexts.

It is interesting to note that the distribution of the bowls recovered from archaeological sites in California may have some significance. According to Chace, the Swirl or Double Happiness-patterned bowls are associated with the very early Chinese railroad work camps at the Donner Pass sites dating from 1865 to 1869. Though absent from the Ventura sample from Southern California dating from the 1870s and 1880s, this Swirl pattern does occur in the N-5 sample from San Francisco as well as from the Old

Sacramento sample from Northern California dating to the same time (Praetzelis 1979b:29, Figure 21c, 21d, and 41b). Chace proposes that the limited distribution of this pattern may be related to the shifts in emigration and the distribution network associated with the Chinese Punti-Hakka wars (1856-1868; Chace 1976: Appended Note). On the other hand, given the abundance of Three Circle and Dragonfly bowls, it may be that the older Swirl pattern was simply replaced by a "new" handpainted cobalt pattern with a more angular shape and simplified decoration.

B. Porcelain

Celedon Ware:

The N-5 collection holds the most extensive number and varieties of shapes and sizes of nineteenth-century Chinese Celadon Tableware yet described from any archaeological context in the United States (see Figure 9.25 and Table 9.06 in Appendix C). It contains at least 148 Celadon Tableware items and an additional number of assorted Celadon sherds (see Table 9.03). The name "Celadon," or "Celadon," derives from the French name applied to the unique glaze found on these Chinese ceramics. Generally, Celadon is confined to a porcelain clay body with a glaze that varies in hue from a dark grass green to pale sea green. The variability in the green Celadon color is largely a result of the differing qualities of iron protoxide present in the glazing compound. The origin of the terms may be the character Céladon, a rustic shepherd-lover in a seventeenth-century French romantic play, *L'Astrée*, written by Honore D'Urfé. Céladon wore pale gray-green ribbons as part of his costume in the play which was popular at the same time this distinctive green-colored Chinese ceramic ware was being imported into Europe (Barber 1914:24). A totally different source for the name Celadon may be a corruption of the same Salah-id-Din (Saladin), the twelfth-century Saracen king who supposedly gave 40 pieces of this ceramic ware to Nur-id-Din, the Sultan of Damascus in 1170 (Honey 1927:17). In any case, Celadon Porcelain Ware, which was manufactured and exported as early as the ninth century, was widely prized for its beauty and for its resemblance to jade. Some even believed that poisoned food served in a Celadon dish would discolor or break the vessel (see Keith 1979:237). Possessing such qualities, Celadon Ware was prized by kings and commoners alike.

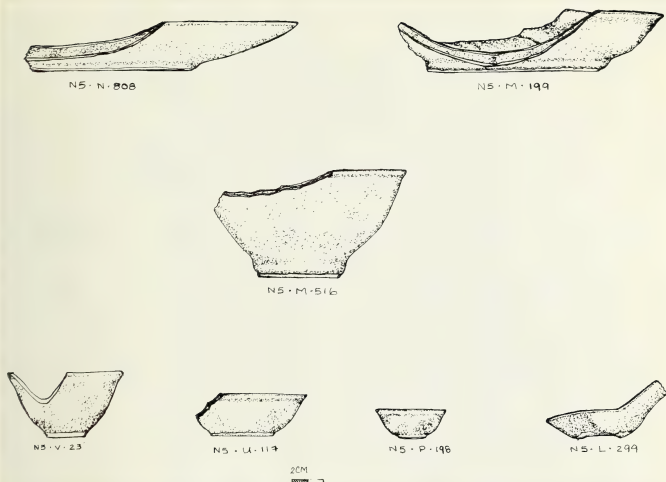
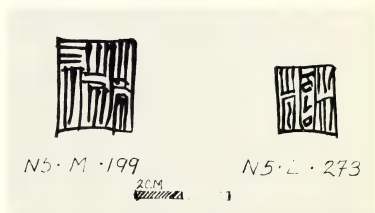


Figure 9.25: Celdon Porcelain Tableware Set. .Prized by kings and commoners alike since the ninth century, Celdon porcelains approach jade in both color and variability of hue. Although the N-5 Celdon pieces are only utilitarian Tablewares, in terms of number, shapes, and sizes they form the most extensive collection ever encountered in similar sites in the United States. (Jane Dill)

Figure 9.26: Reign Marks on Celdon Ware. .Glazed Chinese characters, makers' marks, and reign marks frequently appear on the bottom of Chinese ceramic wares, but the Celdon Wares claim the most marks. Larger vessels usually have larger, more complex, and more informative reign marks. Usually rectangular in shape with Chinese characters or calligraphy inside, the marks indicate a date or period of manufacture. (Jane Dill)



Among the minimum 148 vessels and the additional 35 vessel sherds found at N-5 are samples of all items that would constitute a complete dinnerware set of Chinese Celadon Tableware. For instance, there are 16 wine cups and 1 small and 66 large tea cups, along with another 22 sherds which could possibly represent another 22 tea cups. In addition, there are 2 small size rice or individual serving bowls accompanying 40 large rice bowls and another 10 sherds of the same shape bowl. There are also a variety of shallow dishes, ranging in size from 9 small, 1 medium, and 3 large examples with 1 extra sherd of this vessel type, while there are 1 medium and 2 large serving plates as well. Finally, there are the distinctive hand-pressed ceramic spoons, of which the N-5 collection has 6 bowl fragments and 1 handle sherd. Thus, it is possible to reconstruct from the N-5 sample a complete Celadon dinnerware set for an individual diner. This includes containers for liquids and beverages, provided by the wine and tea cups and by the porcelain spoon for eating soup, as well as vessels for more solid foods, which include the ubiquitous rice bowl and the shallow dishes. Of course, the very small dishes were needed for sauces and condiments, and the larger plates were used as serving platters.

All of the Celadon ware is manufactured of a porcelain body with a light gray-green glaze which varies considerably in color. This glaze is often thicker than the body fabric, especially at the base of the vessels. Invariably, a distinctively light shade of green appears within the interior and underside of the foot of every vessel category, the only exception being the bowls of the spoons. The foot rings are left unglazed as a means of preventing the vessels from sticking to the kiln shelf during the final firing. In the case of the spoons, a low, irregular oval shape foot ring is also left unglazed. Within the foot on the base of each Celadon vessel, a cobalt underglaze mark has been painted, which varies in color from a deep blue to blue-black in hue.

Glaze irregularities occur, generally in the form of pitting. This pitting is supplemented with rare puckering (incomplete coverage) and occasional black flecks or inclusions of foreign matter. The glossy tan or white coloration of the rims and the general edge thinning of the glaze suggest that after the glaze dipping, the vessels may have been placed base up to dry or may have been wiped of excess glaze around the rims. It is also possible that the thinning of the clay body at the rim in

combination with the glazing process produced this distinctive edge and coloration.

Among the Celedon Tableware items (with only two exceptions), size and function are the primary distinguishing factors separating shape categories. Within the group of Celedon rice bowls, there is some structural gradation between what can be termed a "bucket" and a "bowl" contour which terminates on a trimmed round base pedestal (cf. Barber 1914:31). The spoons are obviously unique in shape and construction, with oval bowls, sharply jutting handles, and low irregular feet. The plates are also quite distinctive in that the side walls are straight with flaring edges, lacking the characteristic curvature associated with the foot of the shallow dishes.

Because of the extensive nature of the Celedon Tableware sample, Table 9.03 above and Table 9.06 in Appendix C provide the most succinct and comprehensive review of the shape types, size ranges, and the minimum number of Celedon vessels represented in the N-5 collection.

All the Celedon vessels have a mark or seal executed in cobalt blue underglaze placed in the center of the base on the underside of the vessel (see Figure 9.26). The smaller the space, the smaller and simpler are these marks. Obsversely, the larger the vessel, the more complete and informative are the seals. The marks present a variety of interesting information, such as a date, a commendation, praise or good wishes, a potter's seal or hallmark including the name of the maker and the place of manufacture, a merchant's seal, a brand-name, or possibly a special symbol or emblem (Chaffers 1946:345; Honey 1927:100). A summary list of interpretations of these various marks appears in Table 9.07 in Appendix C, and the reader is referred to this section for specific details.

The smaller Celedon vessels such as wine cups, tea cups, spoons, and most of the small size shallow dishes have simple, single-character marks consisting of up to four brush strokes. The larger vessels have seal or reign marks. Rectangular in form, these have from one character within a grid pattern up to four or six independently executed characters. The size of these rectangles ranges from 1.0 by 1.1 cm. painted on a small rice bowl (N5-U-601) to a maximum of 2.1 by 2.3 cm. found on a large shallow dish (N5-M-545).

In the case of the reign marks, a date or a time period may be

indicated by the **nien-hao**, the name given to an emperor's reign, a portion of his reign, or to a cycle of sixty years (Honey 1927:100). Only the first aspect of the **nien-hao** applies to the N-5 collection. All the characters of a reign mark are read from right to left and from top to bottom. The six-character marks usually contain two characters which identify the name of the dynasty, preceded by the character **ta** meaning "great," followed by the **nien-hao**, and succeeded by two more characters--**nien**, or "period," and **chih**, or "make" (Honey 1927:101). In the case of the four-character marks, the name of the dynasty is simply omitted. In addition to seals executed in standard script, some are painted in Seal Script, an archaic form commonly used during the Yung Cheng and Ch'ien Lung periods (1723-1735 and 1736-1795) which inexplicably appears on vessels in the N-5 sample dating from the 1860s and 1870s.

Historical archaeologists disagree about whether the marks found on imported Chinese vessels are "imaginary reign marks" (Chace 1976:523), "primarily decorative" (Olsen 1978:17), or "seal script characters" (Praetzelis 1979b:25), which are "unintelligible to untrained readers" (Williams 1931:345). Many of these marks, however, are decipherable and translatable, including those on ceramic vessels recovered from Old Sacramento and Lovelock, Nevada (Praetzelis 1979a; 1979b) and from Tucson (Olsen 1978). The various marks appearing on the Celedon vessels from N-5 seems to support the contention that both the simple and the more complex rectangular seals were originally informative, although they degenerated in the process of repetitive production by illiterate craftspeople. In time, many of these seal script marks thus became unintelligible, illegible, and confused.

The single Chinese character, **jih**, translated as "sun," occurs most frequently of all characters of the Celedon Tablewares recovered from the N-5 dump site (see Table 9.07 in Appendix C). Some 35 definite examples of the character **jih** appear on wine cups, tea cups, shallow dishes, and rice bowls, placed on the underside of the bases of these vessels and drawn within the rectangular seal design. An additional 9 vessels have questionably executed "sun" characters as well as 9 tea cups on which the garbled character may be the one for "sun" or the one for the numeral "four" (cf. Fenn 1966:229; 481). In fact, the Chinese character for "four" is the next most frequent, appearing on 11 examples, while the characters for the

numbers "one," "two," "three," "five," "seven," and "ten" appear at least once on separate vessels. On the large vessels, the majority of the reign marks consistently invoke the T'ung-Chih period of the Ch'ing dynasty dating from 1862 to 1874, thus providing us with some definite chronological basis. Furthermore, these various marks found on the Celedon vessels agree remarkably well with those painted in a red overglaze enamel on other types of Tableware (see below). It is interesting to note that the cobalt underglaze which varies from blue to blue-black and the red overglaze paint was consciously employed to mimic the use of black and red ink used in the seal impressions on Chinese paintings. In a sense, then, the ceramic marks appearing on the N-5 artifacts distantly link these Tableware vessels with the broader tradition of Chinese arts and crafts.

In summary, out of the total sample of 148 Celedon vessels, most of the 99 ceramic marks can be read and only 24 marks are undeciphered. Thus, more than three-quarters of the marks and seals in the N-5 Celedon sample are translatable. These marks provide valuable information about the pottery and may tell us something about the kiln or factory where the vessel was produced, the region of manufacture, when a piece was made, and the identity of an individual potter. The reader is referred to Table 9.07 in Appendix C for a full listing and translation of these Celedon Ware ceramic marks.

Celedon Tableware has been recovered from other archaeological sites yielding nineteenth-century Chinese export ceramic ware--including Ventura; Old Sacramento; Donner Pass; Lovelock, Nevada; and Tucson, Arizona. In Tucson, the Celedon vessels have been associated with deposits dating from 1870 to the abandonment of that city's Chinatown in 1968 as a result of an urban renewal program (Olsen 1978:523). None of these samples, however, can compare to the N-5 collection of porcelain Celedon Tableware in sheer quantity as well as in the wide range of vessel sizes, shapes, and types.

Enameled Flower Ware (Four Seasons Pattern):

The distinctive Chinese porcelain tableware call Enameled Flower Ware and generally known as Four Seasons (Chace 1976; Praetzellis 1979a) because of its unique pattern was a very popular ware which is abundantly represented in the N-5 collection. Among the more than 138 vessels and

70 sherds exhibiting this pattern, several distinct shape types and sizes are present (see Figures 9.27, 9.28, and 9.29). These categories include 21 wine cups, 9 octagonal tea cups with additional sherd, 11 small rice bowls and 4 large, high-sided rice bowls; 5 examples of 2 different sizes of serving bowls; 38 shallow dishes and 9 sherds representing at least 4 distinct sizes; and 26 spoons, including 5 bowl and 2 handle fragments (see Table 9.03).

The name given this category of Chinese Tableware relates to the fact that these porcelain vessels and utensils were decorated with a handpainted, polychrome overglaze enamel in a design composed of four flowering plants--the plum, lotus, peony, and chrysanthemum. Each plant is painted in one of the quadrants of the vessel, and each possesses symbolic meaning. The prunus, or winter flowering plum, is associated with winter; the lotus, or water lily, represents summer; the tree peony symbolizes spring; and the chrysanthemum represents autumn (Hackmack 1924: Plate XIV). Each plant also conveys additional meaning. For instance, the plum, associated with Lao Tzu, personifies courage and hope. The lotus, a pervasive Buddhist symbol, denotes spiritual purity and the attainment of transcendent perfection. The peony prepresents riches, honor, and good fortune, while the chrysanthemum denotes good luck, longevity, worldly pleasure, and steadfast friendships (Medley 1964:96; Chaffers 1946:340).

Within the center interior of most of the bowls, shallow dishes, and spoons is also painted a single peach or group of peaches surrounded by a leaf-like halo. This is the Taoist emblem of long life and immortality (Hannover 1925:28; Chaffers 1946:344). In essence, then, the Four Seasons pattern or porcelain Tableware contains design elements reflecting the Confucian, Taoist, and Buddhist streams of Chinese religio-cultural traditions.

In the N-5 sample, the execution of the Four Seasons pattern varies greatly from bold, crudely drawn, dull brown and black plants on the exterior of the tea cups to painstakingly executed, finely drawn underglazed outlining with brightly colored overglazed enamel flowers on the larger vessel shapes. As with the Celedon seal marks, the smaller the vessel, as a rule, the less elaborate and the poorer the quality of the patterning.

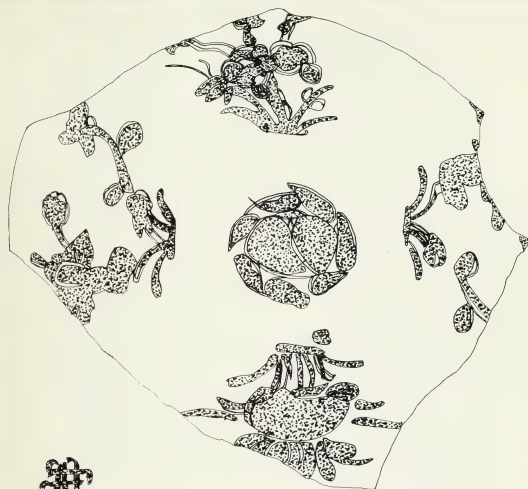
Within the Four Seasons Tableware from N-5, there are at least three and possibly four sub-pattern varieties. The first variety relies on

pink or peach-color tones with light and aqua-green enamels outlined in brown underglaze. The second sub-pattern employs black with orange enamel, while the third type uses orange and a heavy green overglaze enamel in addition to the brown underglaze outlining. The fourth possible variation has solid orange flowers outlined in orange with a light, translucent green and black enamel stem outlined with brown underglaze.

On high shapes such as wine cups, tea cups, and bowls, the Four Seasons design element is applied to the exterior. The peach medallion is absent in both the wine and the tea cups as well as in the high-sided bowls. However, the peach motif alone is found in the interior of the small size rice bowl and the serving bowls with the four other plants painted on the exterior. On the more flat shapes such as the shallow dishes and the spoons, the entire pattern of the four plants and central peach medallion appears on the interior. The elongated shape of the ceramic spoons distorts the pattern so that a foreshortened lotus appears at the tip of the bowl, and an elongated plum blossom spans the length of the handle.

In keeping with the tradition of marking ceramic vessels, only the wine cups, spoons, and some tea cups lack either a rectangular seal mark or an "eternal knot" arabesque (Chaffers 1946:343). All these marks on the Four Seasons Tableware are painted in a red overglaze enamel on the underside of the base of the vessel. However, the seal mark is rarely encountered, appearing only on two tea cups (N5-U-684 and N5-V-28) and on three high-sided bowls. While one of the seals on the high-sided vessel type can be read (N5-N-526), the other three have indecipherably rectangular marks composed almost entirely of vertical lines. The characters of the intelligible example are arranged in the standard four-character format and may probably be translated as a reign mark of the T'ung Chih period of the Ch'ing dynasty. The presence of these rectangular marks and the general clarity of the pattern suggest that these bowls were the product of a different factory or kiln from those producing the vast majority of Enameled Flower Ware porcelain vessels appearing in the N-5 collection.

The eternal or endless knot ceramic mark is more prevalent on the Enameled Flower Ware Seasons bowls and shallow dishes (see Figure 9.28). It is drawn in numerous ways with up to four strokes occasionally appearing as flower petals rather than as an endless knot. As with the porcelain



ETERNAL KNOT CERAMIC MARK

NS-U-439 2CM

NS-U-439 2CM



NS-U-439 2CM

Figure 9.28: Enameled Flower Ware--Four Seasons Pattern Shallow Dish Shown with Eternal Knot Ceramic Mark. . .The Four Seasons design was applied to all types of common Tablewares, including octagonal wine cups, tea cups, bowls, dishes, and serving platters. Often central in the design is a single peach or cluster of peaches--a Taoist symbol of long life and immortality. On the reverse side of the piece are reign marks like those found on the Celadon Wares, or the Eternal Knot emblem, but in red overglaze enamel. The Eternal or Endless Knot symbolizes immortality. (Jane Dill)

Celedon Ware, the larger the vessel, the larger the figure and the greater the number of lines and interstices of the knot. Symbolically, this knot represents immortality, implicit in the structural endlessness of the knot which has no beginning nor end. In addition, the eternal knot symbolizes one of the Eight Precious organs of the Buddha, the intestines which in themselves represent abundance, compassion, and fulfillment (Burling 1953:349).

In addition to their seal marks and endless knots, the shallow dishes and spoons have red overglaze dots, splashes, or smudges on their plain unpatterned sides. On shallow dishes, one and sometimes two equidistant red splashes are placed on the rim, while similar red glaze smudges appear on the spoons at the tip of the tapering bowl. These marks may simply have been decorative devices.

As in the case of the Celedon vessels, the shape categories, specimen dimensions, and the minimum number of vessels of each type represented are presented in tabular form (see Table 9.08 in Appendix C). These tabulations, however, must be prefaced with a few additional comments regarding the nature of the porcelain Enamelled Flower Ware vessels.

In general, the clay body of the Four Seasons Enamelled Flower Ware is normally smooth. Body fissures nevertheless frequently occur along the base rings of the different pottery types, particularly on the larger serving bowls, as the result of differential drying.

It should also be noted that there are two sub-varieties of octagonal tea cups: one with unpainted panels between the four plants, and a second type which has black overglazed enamel Chinese characters drawn on the panels separating the stylized plants. Five of the nine octagonal tea cups are the second sub-type, and, in contrast to other samples of the nineteenth-century Overseas Chinese ceramics, no round tea cups of this ware type have been recovered from the N-5 site.

A third point regarding these porcelain Tableware is that the shape and glaze of the spoons are distinctive. The handle, which projects out from the oval-shaped bowl at a 45-degree angle, is markedly creased, tapering to a very narrow point. The Four Seasons spoons are narrower in shape than the Celedon spoons, though they are approximately the same length. In addition, most of the spoons have a Celedon-like greenish cast to the glaze which is quite unlike the clear to bluish-white cast of the

glaze on the bottom of these spoons. Finally, it is important to note that none of the Four Seasons pattern porcelain vessels in the N-5 collection have a so-called "owner's mark" which appears on similar ceramics from Old Sacramento and consists of finely drilled holes aligned to form a character representing all or part of the vessel owner's name. Praetzelis illustrates two of these marks (1979b: Figure 77d).

Enameled Flower Ware vessels have been found in several other archaeological sites in addition to the N-5 dump site--namely, Ventura (Chace 1976), Old Sacramento (Praetzelis 1979b), Lovelock, Nevada (Praetzelis 1979a), and Tucson, Arizona (Olsen 1978). However, the Four Seasons pattern Tableware is extremely rare in the early Donner Pass sites. From a preliminary comparative analysis, it may be postulated that the Enameled Flower Ware was a slightly later importation that was utilized primarily by more affluent urban-dwelling Chinese emigrants. Along with the Celadon Ware, the Four Seasons porcelains were very popular and saw frequent use among the Chinese in San Francisco during the last century.

C. Miscellaneous Tableware

Within the N-5 Chinese ceramic collection are Miscellaneous Tableware items that do not readily fit in either of the previous two Tableware categories. Among the minimum number of 81 Miscellaneous Tableware ceramics are more various types of tea cups, bowl covers, rice bowls, tea pots and tea pot lids, and wine or soy sauce serving vessels, as well as unique vessel shapes and miscellaneous sherds (see Table 9.03) whose patterns and shapes distinguish them from the other types of pottery. A careful analysis of the disparate miscellaneous types suggests the wide diversity of the ceramic items in the N-5 collection, which obviously reflects the greater affluence and importance of the Chinese community in San Francisco than anywhere else in America. This is especially apparent in the case of the bowl covers which are unique to the N-5 sample, the tea pots, the tea pot lids, and the wine or soy sauce serving vessels, all of which are treated below. The more common vessel shapes such as the miscellaneous tea cups, rice bowls, unique vessel shapes, and miscellaneous sherds (see Table 9.03), as well as specific bowl covers, may be reviewed

at length in Appendix C, Part II, where these artifacts are individually catalogued and described.

Miscellaneous Bowl Covers:

The porcelain covers used as lids for rice or individual serving bowls holding food and tea are generously represented by 8 examples found at N-5. It is extremely noteworthy that this vessel shape is missing from the collections recovered from the Ventura, Old Sacramento, and Donner Pass sites in California, as well as those in Lovelock, Nevada, and Tucson, Arizona. Furthermore, there are no examples of covers in either the Three Circles and Dragonfly, Celedon, or Four Seasons patterns.

The shape as well as the orientation of the design and the occasional characters are the major features which distinguish covers from shall bowls. The shallow-footed covers are consistently 9 to 10 cm. in rim diameter, with one 8 cm. exception (N5-N-730). All but two of the covers, those with the "Two Children and Battle" and "Green Mottled" patterns, have corresponding bowls (see Appendix C for complete descriptions of individual covers).

Miscellaneous Tea Pots:

The tea pots recovered from the N-5 site represent a minimum of 9 and maximum of 13 separate vessels (see Table 9.03). These tea pots can be divided into three distinct types: (1) the White type, which has an Overglaze Character variant; (2) a Cobalt Blue type; and (3) the Characters with Figures type. The White and Cobalt are cylindrical in shape with straight sides which lead to a short sloping shoulder and slightly projecting neck, while the base consists of a foot ring with a slight bevel which sits flush with the walls of the vessel (see Figure 9.30a). The third type, the unique Characters with Figures, is executed with six panels, a flat horizontal shoulder, and a short tapering neck with slightly inset round legs placed at each panel intersection (see Figure 9.30b, and Tables 9.07 and 9.08 in Appendix C).

All of these porcelain tea pots are constructed with two attachments or projections for handles. These tabs are formed with a small, flat slab of clay attached upright at the shoulder on the top of the vessel in direct alignment with the spout. The glaze, which appears slightly greenish-blue

and pitted in the case of the Cobalt pots, is applied to the entire vessel with the exception of the ring base or leg bottoms. In the White pots, the rim interior is left unglazed, probably because of the inset lid and the need to compensate for the shorter neck in order to hold the lid in place while pouring. The spout opening consists of two holes or perforations stacked vertically in the case of the Character with Figures and three holes for both the White and Cobalt varieties of tea pots.

The incomplete base fragment of the Overglaze Character variant of the White type is painted with an overglaze enamel in black (N5-M-151). This section has nine characters which can be translated, though the meaning or context cannot be deduced since it is but a portion of a larger inscription.

Arranged for translation $\begin{matrix} & 5 \\ 8 & 6 & 3 & 1 \end{matrix}$ the individual characters may be trans-
 $\begin{matrix} 9 & 7 & 4 & 2 \end{matrix}$

lated as: (1) **liang**, "pole"; (2) **bu**, "negative"; (3) **chao**, "with"; (4) **shih**, the "Chao family"; (5) **yai**, "precipice"; (6) **shan**, "mountain"; (7) **ts'ang**, "bury"; (8) **liu**, "mountain"; (9) **ts'ang**, "collect" or "preserve" (Fenn 1966:300; 424; 20; 455; 613; 434; 544; and 314, respectively). Three characters suggest a text which involves a burial, a mountain, and the family of Chao who are connected to the fall of the Sung Dynasty (Him Mark Lai, personal communication).

In general, the Cobalt vessels appear to present a central theme or pattern repetition. The fragmentary nature of the sample prevents any definitive statements, however, and suggests that each N-5 example is unique. The Cobalt pots' underglaze is applied in either of two formats or layouts; the first has two encircling horizontal lines located just above the base followed by an expansive pictorial scene (N5-V-153), while the other has a base border of "tongue" elements (Barber 1914: 17) (N5-U-99; N5-M-341; N5-M-475). Cobalt lids presumably covered Cobalt tea pots.

The two exceptionally unique hexagonal Character with Figures tea pots depict a story with three figures, two males and one female in the case of N5-N-425, and two females and one male in the case of N5-V-19. These figures are painted with two layers of overglaze enamel to produce highly detailed pattern variation within the costumes. The story associated with these figures appears on three panels interspaced with the figure panels, and are arranged on either side of the spout panel (see Figure 9.30b, and Tables 9.07 and 9.08 in Appendix C).

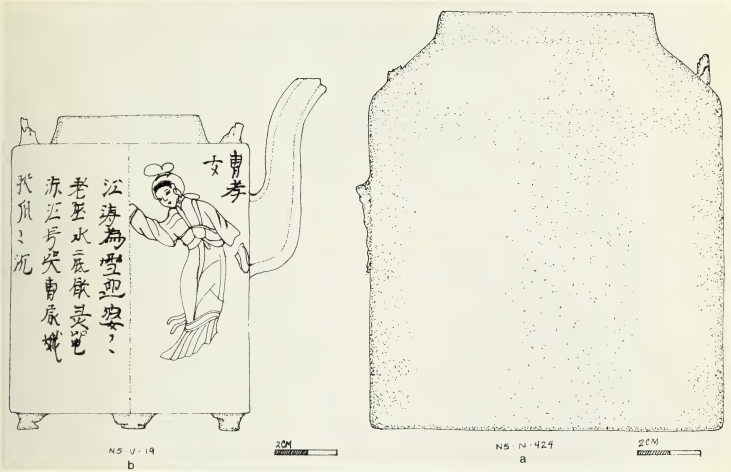


Figure 9.30a: Plain White Porcelain Tea Pot. . .The thirteen Chinese Tea Pots recovered from the N-5 dumpsite fall into three distinct categories--plain white, cobalt blue, and the six-sided Character with Figures tea pots. All were culturally important in the everyday life of San Francisco's Chinese community. The plain white and cobalt blue pots are a simple cylindrical shape with two projecting lugs on the rounded shoulder for the attachment of a handle. (Jane Dill)

Figure 9.30b: Six-Sided Character with Figures Tea Pot. . .The two elaborately decorated tea pots found in the N-5 collection retell in pictures and story the legends of famous Chinese cultural heroes and heroines. Each six-paneled pot has three figures and their stories interspaced between. Chang Ch'eng-yeh and Ts'ao O, like the other figures on these pots, epitomize filial piety, loyalty to the state, personal honor and integrity, or some other Confucian virtue valued by the culture. (Jane Dill)

The panel of characters which contains an abbreviated biographical passage is always located to the left of the figure. The first figure on pot N5-N-425 (see Table 9.07 in Appendix C), proceeding from the left of the spout panel, is Chang Ch'eng-yeh (identified as T'ang Chien'chun on one tea pot), probably the inspecting commissioner of the army for the T'ang Dynasty 618-906 A.D., according to Medley (1964:10). As the story goes, he received the title Chien-chun during the reign of Chao-tsung (889-904 A.D.). Castrated as a youth and raised by the palace eunuch Chang T'ai, he later became the inspecting commissioner of the region called Ho-tung, the area east of the Yellow River in southwest Shansi province. Along with external threats to peace, succession problems ensued with the illness of the T'ang emperor, Chao-tsung. Upon the emperor's death, one of the claimants to the throne set up a successor dynasty called Later T'ang. Because of his prior disobedience to this new emperor, Chang committed suicide by starving himself to death rather than facing execution. The nature of his disobedience is unclear, but he supposedly refused to provide money for gambling and compounded his refusal by requiring that any financial help would be furnished only in order to revive or reunite the T'ang empire (Fang I 1921:939).

The next figure on the pot is Wen Ch'eng-hsiang or Wen T'ien-hsiang. (Ch'eng-hsiang is a title indicating an official, possibly that of prime minister.) This character is a Sung Dynasty personage who lived from 1286 until 1283, a native of Chi-shui in Kiangsi who began a career in public service. He gained notoriety in 1260 by urging the beheading of Tung Sung-chi'en who had advised the abandonment of the capital to the Mongol invaders. In Kiangsi in 1275, he raised an army which was devastated and later served as an envoy to the Mongol general Bayan. Taken prisoner, he escaped, raised another army, lost it, and escaped to Kuangtung where in 1278 he was made a duke, and raised still yet another army. An epidemic among his soldiers in which many died led to both another defeat and capture. Kept as a prisoner for three years, Wen Ch'eng-hsiang resisted allegiance to the Mongol emperor because he could not "serve two masters." Executed at his own wish, he made "a final obeisance southwards as though his own sovereign was still reigning in his own capital." These heroic acts resulted in his canonization (Giles 1898: 874-875).

The third figure of a female known as Ts'ai O, referred to in the

panel as Ts'ao Hsiao Nu or Filial Woman Ts'ao, completes the character selection on N5-N-425, and she begins the set painted on the companion tea pot, N5-V-19 (see Figure 9.30b and Table 9.08 in Appendix C). Living in the period of the Eastern Han Dynasty (25-221 A.D.), Ts'ao O was the adolescent daughter of a magician who, on the festival day of the fifth day of the fifth lunar month, accidentally drowned in a river near Shao-hsing in Chehkiang. Ts'ao O wandered and cried for 17 days along the banks of the river in hope that her father's body would be recovered. Then she too threw herself in the river and perished. Five days later her dead body rose to the surface holding the corpse of her beloved father (Giles 1898:759). In her honor, the local populace erected a stele in what is now modern Shao-hsing. In addition, a river and a number of locations bear her name, and plays have been written about her filial ardor (T'ao Chun-ch'i 1975:42, no. 6674).

The second figure on teapot N5-V-19 is the character Li yeh-hou, also known as Li-Pi and Li Ch'ang-yuan. The title Yeh-hou within the corner of the figure panel refers to the rank of Marquis of Yeh (the modern province of Hunan) conferred on Li in 787 A. D. According to the brief biography provided by Giles, Li Pi who lived between 722 and 789, was a native of Ch'angan in Shensi who by the age of seven as able to compose music. As a consequence of this talent, he was summoned to the Court of the Emperor Ming Huang, where he performed with great facility. In time Li Pi became on very intimate terms with the Heir Apparent, but in consequence of a lampoon on Yang Kuo-chung he was sent away from court. He returned with the accession of the Emperor Su Tsung and declined an appointment but continued his close relationship with the emperor. This friendship incensed the eunuch Li Fu'kuo, and as a result Li Pi sought safety away from the court. The emperor recalled him, and therefore Li Pi became a trusted counselor serving four successive emperors.

In his youth Li Pi studied Taoism and wandered through mountains, pondering the secret of immortality. An ascetic who never married, he ate natural food such as berries and fruit and devoted himself to that form of breathing which is believed by the Taoists to result in immortality. As a consequence of his actions, he became emaciated, receiving the nickname of "Collar-Bond Immortal of Yeh", a reference to the rank of

the Marquis of Yeh. Li Pi is also credited with having an immense library estimated as 30,000 shelves (cf. Giles 1898: 454-455).

The final figure on the pot, a female known as Chao-O, lived about 150 B.C. during the Eastern Han Dynasty. Her father was Chao An, who was falsely accused and executed, losing all his possessions to a man named Chi Shou who was a corrupt official living in the same district, Chiu Ch'uan or "Wine Springs" in modern Kansu province. Chi Shou was relieved that Chao An's sons had died of an illness and thus could not avenge their father's death. But his enraged daughter Chao-O became proficient with the sword and kept one hidden in readiness for her day of revenge. Finally, after ten years in Tu'ting (Hupei Province), she encountered Chi Shou and decapitated him. In one version of the conclusion, she was congratulated for her success and acquitted for her deed, but instead she voluntarily went to jail rather than live counter to the law (Fang I 1921: 1406). Alternatively, "carrying his bleeding head in her hand, she at once gave herself up to justice; but the official who reported the case to the Emperor obtained for her a full pardon, and shortly afterwards married her" (Giles 1898: 73; Julia F. Andrews and Holly Holtz, personal communication).

Of all the Miscellaneous Tableware, these two hexagonal Character with Figures tea pots are the most extraordinary. Not only did they grace the table of nineteenth-century emigrants in San Francisco, providing a utilitarian vessel for the everyday consumption of tea, but they also communicated legendary stories reaching into Chinese tradition and mythology. While sitting on the tea table, these pots functioned as important and meaningful reminders of ethnicity and cultural identity as, in a sense, did all the Chinese Tableware (see Chapter 10 for a discussion of a "Rebecca at the Well" tea pots).

The White and Cobalt tea pots are similar in dimensions to the two Character with Figures tea pots, the smaller of which stands 10.3 cm. in height with a 4.5 cm. rim diameter, a 7.45 to 7.5 cm. shoulder diameter, and a 7.5 cm. base diameter (N5-M-425), while the larger of the two is 10.4 cm. in height with a 4.6 cm. rim diameter, a 7.7 to 7.9 cm. shoulder diameter, and a 7.8 cm. base diameter (N5-V-19).

The tea pots from N-5 are the smallest so far reported in the literature. The Ventura collection from Southern California has a White tea pot which stands 15.4 cm. in height with a 3.3 cm. diameter (Chace

1976: 528). It also contains a Blue Handpainted Pattern with a tea pot and lid, as well as two tea pot lids in a Polychrome Flower Pattern (Chace 1976: 527). The Old Sacramento report illustrates a White and Cobalt example (Praetzellis 1979b: Figure 72, 43d), while the Tucson material includes at least two small Cobalt examples unlike any of the N-5 patterns which stand 15.5 cm. in height with a 12.9 cm. diameter (Olsen 1978: 29, Figure 5 right). In addition, the Tucson collection also has another type of tea pot characterized by "finely detailed polychrome overglaze in famille rose, green, blue, yellow, and orange" (Olsen 1978: 28-29).

A comparison of the archaeological sample from N-5 and other Chinese sites suggests at least three sizes of tea pots. The small category exhibits a height of 10.3 to 10.4 cm., with a 7.5 to 7.8 cm. base diameter; a medium size has a height of 13.1 to 16 cm. and base diameter of 12 to 14 cm.; and a large size is at least 20 cm. in height with a 15.7 maximum base diameter. Although most reports do not include the rim or neck diameter, the dimensions of the N-5 sample of lids which fall into three size categories help strengthen the thesis of at least three sizes in archaeological samples.

Tea Pot Lids:

The seven tea pot lids found in the excavations at N-5 are readily sub-dividable into Plain White and handpainted Cobalt underglaze varieties. When in position on the tea pots, all resemble squat, up-side down hats with flat rim flanges and bottoms. Some variations in the angle or slope of the side wall is present, and in all cases, the exterior side wall and from half to all of the underside of the flange is unglazed. The absence of glaze probably helps the lid "grab" the neck rim of the tea pot. An anomalous lid (N5-N-438) is unique for its unglazed base, a narrow flange, a bevelled flange, and a center number which suggests either the presence of a knob or decorative element.

The three Cobalt lids are characterized by a rope-like pattern, and each has a single encircling line located at the interior base angle and a center filled with a large floral element which results in a medallion-like image. These Cobalt lids vary in size from 1.4 to 2.0 cm. in height, 6.6 cm. to 8.6 cm. in maximum diameter including 1.1 to 1.6 cm. lip width and a 4.45 to 5.8 cm. bottom diameter (N5-K-23 and N5-V-141).

The dimensions of the Plain White lids range from 1.2 to 1.9 cm. in height with a 6.3 to 8.45 cm. maximum rim diameter, measured at the outer edge of the flange, a width lip or flange of 0.9 to 1.4 cm., and a 5.2 to 5.7 cm. bottom diameter. The measurements of all the lids suggest that they fall into three sizes with the smallest being 1.2 cm. in height, the medium size between 1.4 and 1.6 cm. in height, and the large size between 1.9 and 2.0 cm. in height.

Other tea pot lids have been recovered from a limited number of archaeological contexts. In Southern California at Ventura's Chinatown, one Blue Handpainted Pattern (probably related to the N-5 Cobalt variety) and two Polychrome Flower Pattern (probably related to the N-5 Cobalt variety) and two Polychrome Flower Pattern examples (Chace 1976:527) were found, and in the Northern California's Old Sacramento site a Plain White lid associated with a like variety of tea pot (Praetzelis 1979b: Figure 72) was discovered. Outside of California, a small Cobalt type of lid was recovered in Tucson, though this example lacks the characteristic trim around the flange (Olsen 1978:29, Figure 5 right).

Wine or Soy Sauce Serving Vessels:

The nine examples of small, tea pot-shaped vessels designated as wine serving vessels may have been used for wine or other liquids like soy, sweet rice wine vinegar, or even sesame seed oil (see Figure 9.31). The entire sample consists of a single type with a handpainted pattern referred to as Plant with Central Flower. This pattern is not confined to wine pots, however, and the N-5 collection contains a rectangular box (N5-N-581) which employs the pattern without the bottom border (see Other Ceramic Ware below).

Each of these porcelain wine vessels is cylindrical in shape, sloping from the constricted rim to the sharp shoulder and continuing straight to the base. The base is flat, with a base ring aligned with the outer wall of the vessel, slightly bevelled and unglazed to avoid sticking to the kiln shelf. The glazed bases have no manufacturer's marks. Though most of the vessels are now missing their curved spouts, they were undoubtedly attached at between 0.5 and 1.0 cm. below the shoulders, covering a single perforation in the wall of the body. The overall shape of the spout curves upwards so that the opening or tip of the spout is cut horizontally and

tapered to a point. The handle which consists of a pretzel loop-like roll of clay is attached at or just below the shoulder and ends 2 to 3 cm. above the base. Decorated spouts and handles have a line or possibly two lines or splashes.

Executed with a cobalt underglaze, the pattern on the pot divides the vessel into bilateral sections delimited by the spout and handle and sub-divided into a top zone from the rim to the shoulder, a central section, and a painted base border. These zones are accentuated by two encircling lines at the rim, shoulder, and base.

The top zone contains a central flower with four petals which are executed with concentric or spiral lines. Two vines, which resemble a stalk of ginger, project down from each side of the flower. In addition, two or three of the stalks climb up from the base to repeat the sweeping curve of the "framing" stalks. The main body zone begins just below the two encircling horizontal lines at the shoulder with four to five sets of linked ovals (Barber 1914: 15 no. 23). In the center is an enormous flower composed of a large round center with four smaller, semi-circular petals. Flowing vines project from the top of this flower, in a manner which mimics the neck zone above, but these lines extend to form a continuous spiraling circle. A single down-curving stalk which originates just below the other two top stalks completes the central zone. The bottom border, which forms approximately two-thirds of the straight wall area, is composed of rods or scepters in profile placed to form a fence. In the more exuberant borders, these fences appear to be mace heads (N5-U-339 and N5-U-87) and in others, they seem to be mere lumpy poles (N5-O-19 and N5-M-39).

In dimensions, the single example of the small size wine vessel stands 9.5 cm. in height with a 3.1 cm. rim diameter and base and shoulder diameter of 6 cm. (N5-U-339). The eight large samples vary from 11 to 12.1 cm. in height, 3.7 to 3.8 cm. in rim diameter with a base and shoulder diameter of 6.8 to 6.9 cm. (N5-T-35 and N5-N-426). Four spouts and three handles were also found which do not fit any of the wine pots in the collection.

The four wine pot lids are cone shaped with pointed knobs which have slightly sloping top profiles and perch above an unglazed bottom composed of a hollow tube. The one complete specimen is 4.3 cm. in height with a 4.9 cm. top diameter, a 2.1 cm. bottom diameter, and a 1.6

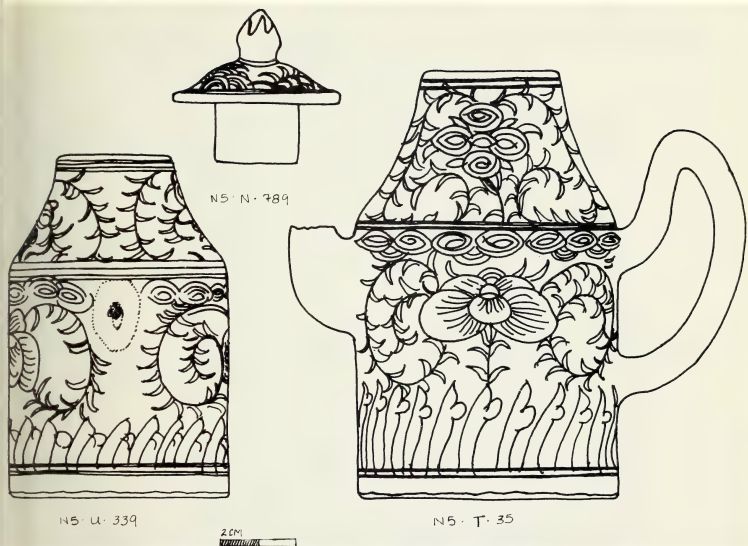


Figure 9.31: Chinese Wine or Soy Sauce Serving Bottles. . .These intricately painted cobalt blue vessels were as ubiquitous as tea pots on Chinese dinner tables. Most likely they held Chinese rice wine, but they could also have contained soy sauce, sweetened rice vinegar, or even sesame seed oil. Standing about 5 inches high, all have a complex Plant with Central Flower underglaze design. Late nineteenth century photographs of Chinese street funerals depict these same vessels, no doubt containing rice wine for the departed ancestors. (Jane Dill)

cm. bottom tube diameter (N5-N-789). When in place, these lids would have projected over the rim of the vessel. The painted lid pattern shows a heavy X-shape on the knob, and within the decorative zone are four quadrants which result from half circles of stalks.

Wine pots with the same patterns were found at Lovelock, Nevada, although they were described as tea pots (Praetzelis 1979a: Figure 3d). They may also be present in the Old Sacramento collection, but because only the lowest portion of the vessels are present, comparisons are difficult (Praetzelis 1979b: Figure 43c). Furthermore, the Tucson collection report describes but does not illustrate a small pot used for heating and serving small amounts of Chinese wine (**Mei Gui Lu** and **Wu Jia Bi**). The vessel size would correspond to the larger size wine pot, and the design description of a detailed floral pattern in cobalt blue on a white ground is also similar. The lid is decorated in the same manner, and a small ceramic knob similarly "enables one to grasp it" (Olsen 1978:27).

OTHER CERAMIC WARE--TYPE III

While nearly 75 percent of the ceramic artifacts recovered from the N-5 dump site are related to traditional Chinese food practices, the other 25 percent consists of several distinct types of ceramic ware that deal with entirely different aspects of Chinese ethnic customs, behavior, and life style that were also transposed to the American social setting. Among the minimum number of 102 Other Ceramic Ware artifacts are Opium Pipe Bowls, Decorative Temple Tiles, Candle Holders, and a Sand Container with a Tripod Base for burning incense, as well as a porcelain Red Seal Ink Well and a Flower Bulb Container (see Table 9.04).

While examples of Opium Pipe Bowls have been found in other comparable sites, all the remaining Other Ware are unique to the N-5 collection, reflecting aspects of nineteenth-century Overseas Chinese life that were more prevalent in San Francisco than elsewhere in America. This array of Other Ceramic Ware chiefly reveals the involvement of the emigrant Chinese in the realm of fantasy and dreams facilitated by opium intoxication and the maintenance of traditional socio-religious activities and ritual practices through the Decorative Temple Tiles, Candle Holders, and incense Sand Container with its Tripod Base. The presence of the Red Seal reflects aspects of the continued literary/official and aesthetic aspects of their living. Despite Lin Yutang's admonition that the Chinese are serious about neither religion nor learning but food, the third major component of Other Ceramic Ware recovered from the N-5 site points directly to the fact that the Overseas Chinese in America maintained and cultivated essential aspects of their indigenous cultural life ways. It is to these non-food ware artifacts we now turn our attention.

A. Opium Pipe Bowls

Regarded by many as symbols of dissipation, opium poppies were grown in China from an early date primarily for ornamental and decorative purposes. The habit of smoking the poppy's resin, derived from bleeding severed opium poppy flower ovaries, was introduced into China from abroad only several hundred years ago. However, its use spread widely among the

TABLE 9.04
TYPE III--OTHER CERAMIC WARE

N-5 Report Category	Minimum Number of Vessels
A. Opium Pipe Bowls	7
B. Decorative Temple Tiles (76)	
1. Green Tiles	54
2. Yellow Tiles	22
C. Candle Holders	15
D. Sand Container and Tripod Base	2
E. Red Seal Ink Well	1
F. Flower Bulb Container	1
TOTAL:	102
TOTAL Of Types I, II, and III	635*

*Note: Discrepancies exist between the minimum number of vessels and the number of vessels used in the determination of the size ranges presented in the tables in Appendix C. Two measurements of either height, maximum diameter, or foot ring diameter were necessary in order for a vessel to be included in the size-range samples.

Chinese during the early nineteenth century when British trading interest forced cheaply procured Indian opium onto an unwilling domestic Chinese market at high prices and profits. General addiction and demand for the drug in China rose sharply in this period. It is not surprising, therefore, that evidence of this socio-cultural practice appeared in the form of seven Opium Pipe Bowls found within the N-5 ceramic artifact sample. Because of the importance opium played in both China and in the Overseas Chinese community in San Francisco, a brief discussion of the history and method of opium use is in order.

The monumental character of opium trade was strategically engineered by British merchants who directly profiteered in human misery and addiction. Between 1821 and 1830, opium amounted to almost 50 percent of the total Chinese imports, while constituting over 90 percent of the British foreign trade with China. Alarmed that opium was both financially draining as well as medically deleterious to the health of millions of opium users, the Manchu government was nevertheless unable to control foreign interests operating within its own boundaries. During the early nineteenth century, Chinese laws prohibiting the importation, cultivation, and smoking of opium were enacted to no avail. Instead, the use of opium soared dramatically from 1825 to 1835, doubling to 35,000 chests per annum. (A chest is equivalent to 133 pounds.) In response, Chinese officials confiscated and destroyed some 20,000 chests of the drug worth nearly \$6 million, an act leading to the so-called "Opium War". The victorious British forced the Chinese to make reparation payments equal to the lost opium and to relinquish seaports along the China coast, opening them to further British trade and economic inroads (cf. Cheng 1956:5; Kim 1974:3).

Opium use in California began with the first large influx of Chinese emigrants to San Francisco in the 1860s. At first the opium was freely imported with other Chinese goods and foodstuffs; later, it was highly taxed and subsequently smuggled into the city as contraband. According to McLeod, in the early 1870s ". . .tins, about the size of sardine cans sold for eight dollars in San Francisco and nearly every house, store, and shop in Chinatown was provided with the drug, together with the implements for using the article" (1947:155). Over 60,000 pounds of opium reportedly entered the port of San Francisco during the 1880s (McLeod 1947:160).

As long as opium smoking was confined to ethnic Chinese--despite the fact that an estimated 40 out of every 100 Chinese in San Francisco smoked the drug--there was little public outcry against the substance. However, when the habit was taken up by Anglo men and women, municipal authorities reacted by cracking down on opium dens. The 1870 investigation launched by the San Francisco Board of Supervisors, which dutifully cataloged the perceived and real evils of Chinatown, listed 20 "Opium Resorts" by address, number of bunks, and general condition. Most were described as deplorably filthy (see Map 9.03 and Farwell 1885:27).

By the mid-1870s, the use of opium had increased considerably, and McLeod alarmingly reported that "over two hundred opium dens were counted within a part of the nine city blocks which constituted Chinatown in 1876" (1947:156). Rev. Otis Gibson observed similarly that "in every Chinese restaurant of any pretensions is a raised platform or dias under a canopy, provided with pipe and pillow for use of opium smokers. Opium is the curse of the Chinese, just as intoxicating liquor is the curse of Americans" (1877:72). Farwell describes the San Francisco opium dens of the 1880s in this way:

The opium lay-out is found in nearly every sleeping-room in Chinatown, and is nearly as common as the tobacco pipe; but these dens are for the general accommodation of those who have no sleeping bunks and conveniences of opium-smoking of their own, and who therefore frequent these resorts to indulge in the habit. The bunks are occupied night and day, and the spectacle of pallid men in a condition of death-stupor, wrapped in dirty rags which constitute their bedding, may be witnessed in these dens any day from 10 A.M. to 2 P.M. (1885:26).

Although these observations of nineteenth-century Overseas Chinese opium use have racist elements, some acknowledgment is nevertheless made of the physical relief and emotional outlet that smoking opium provided for the mass of exploited emigrant Chinese workers in the city (see Figure 9.32).

Given this historical documentation recounting the extensive use of opium among the Chinese in San Francisco of the last century, it is not surprising that six ceramic opium pipe bowls and a fragment of a seventh were recovered from the N-5 dump site. These pipe bowls look like ink bottles, but have a small hole on the smoking surface and a larger hole on the opposite side which attaches to the brass fitting on the opium pipe

itself (see Figure 9.33). In a recent article on nineteenth-century opium pipe bowls found at the Donner Pass sites and at Virginia City, Nevada, Patricia Etter succinctly describes the procedure for smoking opium in which these pipe bowls were used:

Smoking-opium was a viscous liquid. . .and had to be cooked before smoking. A pea-sized portion of opium was impaled on the needle and heated over the cooking lamp until it became soft. . . . The smoker then placed the opium-laden needle into the aperture of the pipe bowl and withdrew the needle. The opium remained on the top of the bowl, around the aperture like a small doughnut. Ideally, the smoker reclined on a couch, and holding the pipe at an angle to the flame of the lamp, inhaled and sucked the flame against the opium. The opium burned to smoke, and the smoker breathed this in, much cooled down through the pipe. His smoke was finished in about thirty seconds (1980:99).

In one pipe bowl, the top opening has been enlarged through repair, resulting in a gaping 1.6 cm. diameter aperture (N5-X-10). Apparently, opium pipe and pipe bowl repair was prevalent in San Francisco in the nineteenth century, and photographer Arnold Genthe mentions that in 1913 there was a familiar opium pipe bowl mender "who sat in the same spot--on Dupont Street a few doors from Jackson--for a decade or longer. A picture always, what with his bow strings, his tiny hammers, his leather cases. . . ." (1913:186).

All six of the N-5 pipe bowls are burnished to very fine texture and manufactured of an extremely fine paste in either red or red-brown earthenware or gray-colored stoneware. The process of burnishing consists of smoothing the surface of the clay with either a smooth pebble or leather while the surface of the clay body is slightly damp. Along with the dense, fine clay body, this burnishing results in a silky texture unlike any other vessel category found in the entire N-5 collection. In two cases, both fragments (N5-M-43 and N5-N-215), an optional red slip was applied in multiple layers and then burnished to such a degree so as to appear as a lacquer ware upon casual examination. Only one of the stoneware bowls has a streaky red-brown slip, a dull sheen on the exterior as well as interior walls, and a plain gray top (N5-Z-289). This juxtaposition of finishes and lack of impressed or incised characters suggests that the streaky dull, red-brown texture may have been stylish or the product of a particular ceramic factory.



Figure 9.32: San Francisco Opium Den, 1890s. ...Opium smoking was by no means confined to ethnic Chinese, but the practice was associated with them in nineteenth-century San Francisco. Over 60,000 pounds of opium entered the city in the 1880s, when more than 200 opium dens were counted in the nine-block area of Chinatown. It is no wonder then, that several ceramic opium bowls turned up in the archaeological sample from N-5. Observers writing during the last century noted that opium was to the Chinese as alcohol was to the Anglo Americans, and in either case the consumption of these drugs undoubtedly eased the pain of a harsh existence. (Bancroft Library)

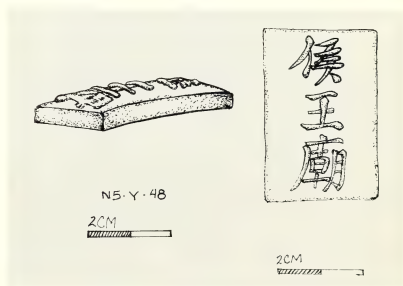


Figure 9.34: Decorative Chinese Temple Tiles. . .Seventy-Six complete or nearly complete small green or yellow decorative tiles were recovered from the N-5 dumpsite. All measured $1 \times 1\frac{1}{2} \times \frac{1}{4}$ ". All have the same embossed Chinese characters on their glazed surface which read *hou wang miao*, or "Temple of the Noble King." Conceivably, these tiles came from an inner shrine room in one of the city's 13 temples, perhaps the Sun Hou Wang temple founded by the Yeung Wo District Association and dedicated to Sun, the Monkey King who attained Buddhist enlightenment. (Jane Dill)

Opium Pipe Bowls



N5-N-374



N5-X-10



N5-N-377



N5-Z-289



N5-EE-129



N5-N-215

2CM
10000



Facsimile Opium Pipe

Figure 9.33: Styles of Opium Pipe Bowls. . . . A variety of ceramic opium pipe bowls were imported from China along with the opium itself, as this sample from N-5 indicates. The opium pipe itself consisted of a long hollow wooden or bamboo tube with a brass fitting toward one end onto which the clay pipe bowl was placed. The finely textured and burnished hollow clay bowls have small openings on the top surface around which softened opium was placed. The smoker, usually reclining, held his pipe at an angle, ignited the viscous opium from the flame of an alcohol lamp, and inhaled the intoxicating vapors. (Jane Dill)

The pipe bowls may be separated into two major shape categories. The first has straight walls with a "Turned" or "Ridged" variant (N5-N-377, which is similar to Greenwood 1978:48 and to Praetzellis 1979b: Figure 67b; both N5-N-215 and N5-EE-129 are similar to Praetzellis 1979b: Figure 43b). The other basic shape is executed with a sloping wall or in a "funnel" shape and has a fluted variant (N5-M-43 and N5-N-374 are similar to Praetzellis 1979a: Figure 7K). Figure 9.33 shows the range of shapes.

In reconstructing the steps of manufacture of the Opium Pipe Bowls, it appears that the entire side wall shape was made first. Then the flat top was secured, as deduced by the interior finish of the sides and the sharp edge curve where the top and side join. Lastly, the projecting base flange opening or aperture was attached to the base, as exhibited by the irregular lumps around the stem opening (N5-N-289). This ridged aperture stabilized and fixed the bowl on its metal fittings.

The decorative elements on the Opium Pipe Bowls consist of incised lines which form characters as well as emphasize the shape (N5-M-43; N5-X-101). The one dull red-brown streaky textured opium pipe lacks evidence of incising but seems to have been marked with a series of characters denoting a specific shop (N5-Z-289).

On first glance, the absence of glazing seems to be an aesthetic decision, but a functional reason may be more valid. Dense earthenware or stoneware may have retained heat better, while rapid heating and cooling of the pipe would probably cause the glaze to crackle and eventually peel off. Furthermore, the incised and impressed characters are much more visible on the burnished surfaces (see Table 9.09 and Figures C.10-C.14 in Appendix C).

The translation of the impressed characters on the Opium Pipe Bowls reveals the existence of at least three separate shops or factories which made the pipe bowls used by the Chinese residents of San Francisco. Table 9.09 in Appendix C gives complete translations of all the characters on the N-5 opium pipe bowls. The first shop produced a fluted funnel shape (N5-N-374) as well as a straight-walled type (N5-EE-129) in red earthenware. The translation relates that "Chao" (a family surname) made the pipe and gives the location of the shop, which may be interpreted as "Hui mountain east of the river" (personal communication, Julia F. Andrews and Holly

Holtz; see Table 9.09 and Figure C.11 and C.12 in Appendix C).

The other two pipes, manufactured in another shop, are distinguished by their black body fabric and distinctive circular signs which flank the impressed characters (N5-N-377 and N5-X-10). Both of these pipe bowls are impressed with characters reading that "Cheng" (a surname) probably made them in a shop located by or nearby "water next to sprout or bud". These two pipes may possibly correspond to a pipe found in Lovelock, Nevada, which has a brown stoneware body (Praetzelis 1979a: Figure 7a) (see Table 9.09 and Figures C.13 and C.14 in Appendix C.)

The two fragments of opium pipes (N5-N-43 and N5-N-215), each slipped with a rich, bright red, are unique. The former has incised characters which can be translated as a portion of a longer inscription admonishing "Happy Smoking" or "Smoking Happy" or "Happiness". The latter was impressed with the placename, "East of the Tree", and the recommendation, "High Record", which may be translated as meaning that the product itself is "High Class" (see Figures C.09 and C.10 and Table 9.09 in Appendix C). Measurement of the bowls is hindered by the specialized shapes and the fragmentary condition of the specimens. The spectrum of size ranges roughly from 4.1 to 4.7 cm. in total height with a 2.85 to 3.2 cm. body or side wall height, a top diameter of 6.6 to 7.7 cm. and bottom aperture opening which slopes to 2.3 to 6.1 cm.

Similar pipe bowls have been found in Southern California in Ventura with not only reddish brown, dark brown, and gray body fabrics, but also in green and purple (Greenwood 1978:48), and in Northern California sites such as Old Sacramento (Praetzelis 1979b: Figure 43b, 67a and b), and Donner Pass (Chace 1969 and personal communication 1979). In addition, opium pipes have been recovered from Lovelock, Nevada (Praetzelis 1979a: Figure 7a-k), and Tucson, Arizona (Chace 1979: personal communication).

Recovery of these Opium Pipe Bowls from the N-5 dump site and other sites in the Far West sheds important light on the very important escape world that in part characterized the lives of many Overseas Chinese in America during the nineteenth century. Though opium is no longer used, it once helped compensate the isolated and lonely male sojourners for the difficult experience of living in a hostile foreign land.

B. Decorative Temple Tiles

The N-5 collection contains a unique group of what seems to be Decorative Temple Tiles fashioned in fired clay and glazed green or yellow over embossed characters. These tiles are relatively uniform, measuring between 4.1 to 4.2 cm. in length and 2.7 cm. in width with a thickness of 0.4 to 0.5 cm. rising to a maximum of 0.6 cm. over the embossed characters. Glazed on only the embossed surface, the green tiles number 48 complete and 6 fragments, while the yellow tiles number only 7 complete and 15 fragments (N5-Y-48 through N5-Y-70), making a total of 76 tiles (see Table 9.04, Figure 9.34, and Figure C.15 in Appendix C).

The three characters on each of the hand-made, individually impressed tiles are arranged from top to bottom. The first character, **hou**, translates as "marquis" or "noble"; the second character, **wang**, means "king" in this context; and the third or bottom character is **miao**, or "temple" (Fenn 1966:157, 594, 340). Thus, the full translation appears to be either the "Temple of King Hou" or more accurately, the "Temple of the Noble King" (Julia F. Andrews, personal communication).

By 1883, there were 13 Chinese temples in San Francisco, 7 of which were affiliated with the seven district associations (Wu 1928:176). Apparently, these unique embossed tiles were associated with one of these nineteenth-century Chinese temples, either in the decorative construction of the temple itself, or as votive offerings dedicated to the temple or as memorial altar tablets. Further, they may have been an essential element either in the main temple sanctuary or in a separate shrine room within a temple complex, because Chinese temples are often dedicated to more than one deity (cf. Williams 1976:296).

From information in Chinn (1969: 73-75) and from discussions with members of the Chinese American community, it seems likely that these tiles came from the sanctuary of the T'ien Hou Temple or possibly from the Sun Hou Wang Temple which was destroyed in the 1906 earthquake. The temple of T'ien Hou is one of the two oldest Chinese religious institutions in San Francisco, dating from the 1860s and connected with the Shew Hing Benevolent Association which broke away from its parent Sze Yup district organization in 1862. In 1892, Masters referred to the fact that the T'ien Hou Temple had been in existence for over 40 years

(Wells 1971:26; Philip P. Choy and Vincent Tang, personal communications). The temple of T'ien Hou is located on Waverly Place on the fourth floor of a building where, as its former custodian said, it is "as near the gods as possible" (cf. Chinn et al. 1969:73). According to the late Chingwah Lee, Waverly Place "has always been called by the Chinese in San Francisco, T'ien Hou Miao or the Street of the T'ien Hou Temple" (Chinn 1969: Ibid.). This temple is chiefly dedicated to T'ien Hou, the Queen of the Heaven. Also called Tou Mu, the Goddess is a Buddhist tantric deity related to the Indian Goddess Maritchi, protector of travellers, sailors, actors, and prostitutes, and she was favored by Chinese sojourners and prostitutes in San Francisco during the last century.

It is also conceivable that these tiles were connected with another early Chinese American temple dedicated to Sun Hou Wang, or "Sun, the Monkey King", a temple founded and maintained by the Yeung Wo District Association. According to legend, Sun, the Monkey King, became proficient in the "noble path" of Buddhist doctrine and was deified for the benefit of all those seeking a righteous life (cf. Chinn 1969:75). Although evidence is far from conclusive, the tiles which state **hou wang miao**, the "temple of the noble king", are most likely connected in some way to Sun Hou Wang and this district association temple of the monkey king.

Regardless of the temple from which these tiles came, their presence in the N-5 sample is indicative of the maintenance of traditional Chinese religious practices in America during the last century. Comparable ceramic artifacts from other sites containing nineteenth-century Chinese materials are non-existent, suggesting the greater extent and development of mainland Chinese religious institutions in San Francisco than elsewhere. Whatever their individual meaning, these tiles stimulate a host of fresh questions concerning the nature of the lives of the early Chinese emigrants to San Francisco.

C. Candle Holders

The Candle Holders found in the N-5 dumpsite have been one of the more perplexing ceramic shapes of the collection. Because these shape types have not been encountered in any other comparable archaeological sample, it was initially difficult to ascertain the exact function and purpose of

this category of Other Ceramic Ware. Contemporary members of the Chinese community, however, have positively identified the N-5 specimens as Candle Holders (Daniel and Violet Chu, Philip Choy, and Him Mark Lai, personal communications). In addition, close inspection of nineteenth-century photographs of Chinatown reveal that these particular ceramic items were common ritual paraphernalia in public Chinese street funerals (see lithograph reproduced in Trauner 1978:74; and photograph of Chinese funeral in Dicker 1979:83). In her outstanding historical photographic essay on the Chinese in San Francisco, Dicker also mentions that several stores in Chinatown specialized in funeral supplies (1979: *Ibid.*), no doubt including the now broken Candle Holders in the N-5 collection.

The 15 examples of ceramic Candle Holders have been subdivided into three main types on the basis of shape: the Chalice, Oil Can, and Lamp Base varieties (see Figure 9.35). All are fashioned from stoneware fabric fired from gray to white with a faint red color and with sandy inclusions varying in color from white to light pink. Their glaze, which ranges from white through gray to greens, and even black, is mottled or speckled, resembling a textured cork. Black and white flecks are present in the overall green example, while white, browns, or tan intermingle. When glaze pools form, they often project a greenish or gray-blue hue. Because of the degree of crackling and weathering, i.e., the fine-line cracks in the glaze resulting from an unequal fit of the enveloping glaze over the clay body, much of the glaze is now missing from the Candle Holders. No doubt, contact with the slightly acid soil at N-5 has hastened this process. Regardless of shape, the entire sample of Candle Holders appears to have been dipped into the glaze and then wiped off at the base, leaving the interior or underside unglazed.

The Chalice shape Candle Holder is composed of a trumpet-like base upon which an up-curving tier or saucer is affixed on a tapering central cone. None of these central cores or cones are intact in the entire N-5 sample. Only the Oil Can shape seems to have been purposefully hollow, though a solid clay inset comparable to the two other shape types may have been present originally. The Lamp Base sub-type consists of a deep saucer base with straight sides with a central core. Because the sample is incomplete, there can be no certainty as to whether the central cone

was originally truncated. Both this Lamp Base and Oil Can shape have rounded, rolled edges, while the Chalice shape bases are simply trimmed.

Since none of the central cones or cores of these Candle Holders are complete, all the height dimensions are incomplete. Only approximations can be made here. The 9 Chalice-shaped examples range from 7.2 to 12.3 cm. in incomplete height, from 6.6 to 7.7 cm. in maximum diameter, and at the tier from 5.9 to 7.1 cm. in width (N5-U-339 and N5-EE-71). The 3 Oil Can examples range from 8.0 to 8.6 cm. in incomplete height and from 6.0 to 6.2 cm. in base diameter (N5-N-564 and N5-N-213). The third subtype, the Lamp, consists of three members which range from 7.5 cm. in height with a base diameter of 7.6 cm. (N5-Z-306) to the largest which is 1.8 cm. in height, having literally no central cone but with a base of 11.3 cm. in diameter (N5-N-747).

While there is a possibility that these Candle Holders might instead be incense holders, most evidence suggests the contrary. Special incense sand pots sitting on their own separate bases were usually utilized by the Chinese for burning incense in various ritual activities. It is interesting to note that the ceramic body fabric and glaze of all the Candle Holders are very similar, if not the same, as that of the incense Sand Container and Tripod Base discussed below. Both were used in Chinese funerals, and both were invariably supplied by the same shops. It is therefore enticing to speculate that the Candle Holders and the incense Sand Containers may have been manufactured by the same factories in China within the same ceramic tradition.

D. Sand Container and Tripod Base

A ceramic Tripod Base and an associated fragmented Sand Container together form one of the most unusual items in the N-5 sample (see Figure 9.36 and Figure C.15 in Appendix C). According to contemporary Chinese viewers of the N-5 collection, this pot and tripod base function as a "Sand Pot" in which sticks of incense are burned on the altars of shrines. The term "Sand Pot" is loosely applied, since the vessel holds a fine mixture of the burned incense as well as sand (Daniel and Violet Chu, Him Mark Lai, and Philip Choy, personal communications). No similar shapes or even the ware type have been reported for other deposits of overseas Chinese

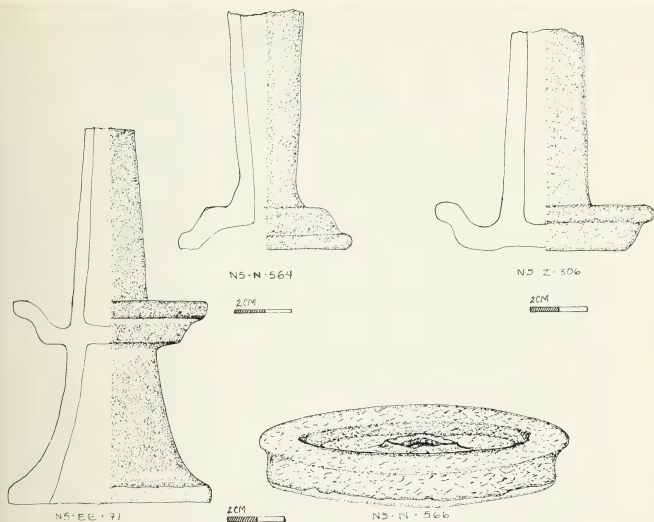


Figure 9.35: Ritual Candle Holders. . .The 15 distinctively shaped ceramic Candle Holders in the N-5 collection have been given the descriptive names "Chalice" (upper left), "Oil Can" (upper right), and "Lamp" (lower left). Also shown is a "Lamp" base. In nineteenth-century photographs and lithographs of Chinese street funerals, similar candle holders are in evidence as part of the ritual paraphernalia used in the ceremony. (Jane Dill)

ceramics in America. The body fabric is a white to beige colored stoneware with temper inclusions that result in a rough texture and surface. The clay body appears reddish in color along the glaze border of one side of the tripod, suggesting a variation in the kiln conditions during firing.

The tripod base (N5-N-564) consists of a round platform which is moderately convex on the top surface. The three semi-circular legs which are occasionally referred to as "cloud feet" (Medley 1964:77) stand about 2 cm. in height and were obviously trimmed to the desired proportions. The present "top" surface is extremely weathered in appearance with most of the glazed area a mass of brown with gray and clear flecks. The only exception to this dull surface consists of three comma-shaped depressions which radiate from the center, each spaced equidistantly from one another. Within these shapes, pools of glaze have collected and remain intact, thus providing a glimpse of the original, predominately brown surface glaze. This glaze also dribbled down to midpoint of the three tripod legs during the glaze firing, while the base shows no evidence of glazing. This tripod platform is approximately 3.0 cm. in height with a maximum diameter of 10.7 cm.

The round, incomplete vessel bottom (N5-U-371) fits snugly into the depressions of the tripod. In keeping with the style of the ridged or stepped base, the three legs on the bottom of the vessel are constructed with a single tier aligned bilaterally. These legs are attached near the periphery of the container, thus insuring a slightly smaller base diameter.

Although now only 5.8 in height, the container was probably at least twice as high, as indicated by its maximum diameter of 11.2 cm. The indented or stepped base constricts to only 9.1 cm. in diameter at the base. The interior and the three legs of the container are left unglazed, though the legs reveal the tell-tale signs of glaze wiped from the surface after immersing the vessel into the glaze solution. The evidence for this wiping consists of a glassy, light reddish color which is visible along the border between the glazed and unglazed sections of the vessel. Unlike the tripod, the glaze on the container is still glassy looking, but it does display the characteristic white and brown specks or flecks.

Very similar incense Sand Containers and Tripod Base can be seen in the historic photographs and lithographs of Chinese street funerals (see

previous discussion of the Other Ware Candle Holders). According to Trauner (1978:75), in the mid-1870s a smallpox epidemic claimed the lives of over a thousand Chinese in San Francisco, and street funerals were a commonplace sight in which both the Candle Holders and the ceramic Sand Pots functioned as important parts of the funerary ritual paraphernalia. Also, as members of the contemporary Chinese community have pointed out, similar Sand Pots and Tripod Bases are utilized today in domestic ancestral shrines where incense sticks are still burned as offerings on altars. Thus, both the ceramic Candle Holders and the Sand Container with Tripod Base in the N-5 collection are significant artifact types revealing traditional Chinese ritual practices that were carried to nineteenth-century San Francisco's Chinatown from homeland China.

E-F. Red Seal Ink Well and Flower Bulb Container

Unique to the N-5 Chinese ceramic collection, neither of these Other Ceramic Ware vessel types has been found in any other site yielding nineteenth-century Chinese pottery. Both the distinctive Red Seal Ink Well and Flower Bulb Container vessel shapes are made of a porcelain body fabric with cobalt blue underglaze and blue design patterns.

The Ink Well (N5-N-581) is a small rectangular porcelain box about the size of deck of cards (see Figure 9.37). Smearred over the plain white interior bottom of this box is a distinct residue of red cinnabar, which was the viscous material stored in the box and used for a red-color seal ink. A carved Chinese seal would be pressed into the red ink and an impression made on paper documents. The rim ridge of this box is built slightly higher than the side wall in order to accommodate the missing ceramic slab lid. The box has a plain glazed interior with an exterior painted in a Plant with Central Flower pattern in a cobalt blue underglaze similar to the design found on the porcelain Wine or Soy Pots (see above). With a base that has a distinctive greenish cast, the box measures 2.8 cm. high, 10.8 cm. long, and 7.8 cm. wide.

The double-walled rectangular ceramic object (N5-U-455) is most likely a Flower Bulb Container (see Figure 9.36), its outer wall of open latticework. The two feet which are still present on the vessel fragment are made from slab sections with wads of clay from the kiln still adhering.

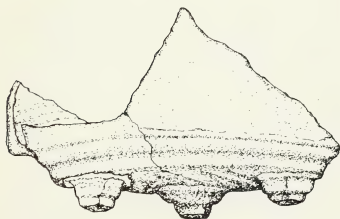
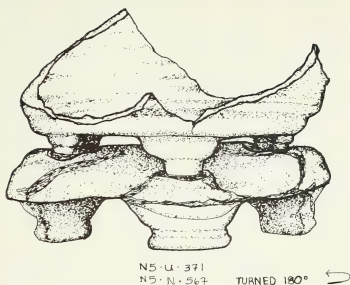


Figure 9.36: Ceremonial Ceramic Sand Pot With Tripod Base. . . This unique piece of ceramic ware had important ceremonial value in Chinese ritual life. Filled with sand, the ceramic pot served as an incense burner. Sticks of fragrant incense were stuck in the sand, and the ash from the burning incense dropped into the pot. The pot itself rested safely on a fitted base. This piece of ritual ware was also used in Chinese funerals and often sat on domestic and temple altars. (Jane Dill)

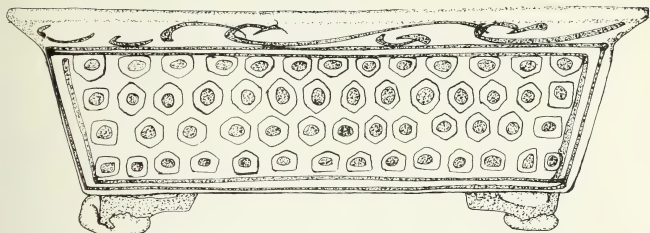
The porcelain clay body is painted with a cobalt blue underglaze with edges outlined in double blue lines along with curvilinear scallop strokes painted under the projecting rim. The 2.4 cm., flat rim top is designed with a flower having five petals at each stepped corner. Like the Red Seal Ink Well, this Flower Bulb Container has a greenish glaze cast and measures 5.6 cm. high, 7.0 cm. long, and 16.4 cm. wide. Both these Other Ceramic Ware artifacts suggest diverse, culturally specific activities characteristic of the nineteenth-century Chinese in San Francisco.

CONCLUDING OBSERVATIONS ON THE CHINESE CERAMICS

The Chinese pottery from N-5 is one of the most extensive collections of Overseas Asian ceramics to be systematically analyzed and described in the literature of historical archaeology. As such, this body of artifacts represents a significant addition to the archaeological study of ethnicity in America. The discarded, often broken ceramics which became incorporated into the mass of waterfront landfill accumulating behind the newly erected seawall are among the sole surviving material remnants of a long neglected and little understood immigrant group in nineteenth-century California. For the most part, the N-5 collection consists of items which were mass produced and commonly used. These artifacts bear witness to the daily pattern of life in the residences and restaurants of San Francisco's workingclass Chinese community of the early 1880s.

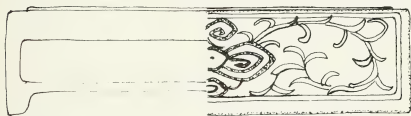
Because one of the central purposes of studying the assemblages of archaeological materials is to understand the natural and social environments in which the artifacts were manufactured and utilized, we have reviewed the historical backdrop against which the Chinese emigrated and settled in the American West during the second half of the nineteenth-century. In this chapter, we have seen how the N-5 ceramics form a tangible link to the complex, multifaceted series of commercial relationships which once existed between ambitious American entrepreneurs and the patriarchal heads of family associations in southern China. These far-flung international networks encouraged the wholesale exodus of thousands of Chinese peasants to California and, for many decades, controlled the lives of the immigrants through a variety of economic and filial obligations. In addition, through an extensive system of production and distribution, the types of goods which these displaced workers created and consumed were directly influenced and regulated.

The N-5 Chinese ceramics are significant from a number of perspectives. First, the collection is remarkable for its depth and diversity, containing the most comprehensive assortment of vessel shape types and miscellaneous decorative patterns yet recorded for a nineteenth-century archaeological assemblage of Chinese ceramics from the Far West. A number of distinct vessel shapes and sizes were first identified and recorded



N5 U.455

b 2CM



N5 N.581

a 2CM

Figure 9.37b: Flower Bulb Container. . .This double-walled porcelain container has a latticework outer wall and was probably used as a flower bulb container. Flowers such as narcissus, daffodils, or perhaps tulips were planted in the decorative container which was placed on table or window sill. (Jane Dill)

Figure 9.37a: Red Seal Ink Well. . .Made of cobalt blue painted porcelain, this rectangular ink well once contained red cinnabar paste used for printing the impression of personal seals onto letters and documents. (Jane Dill)

at N-5. Among the specimens of Utilitarian Brown Ware, these include Anglo-Shaped Beverage Containers, Thin Brown Jars, and extra-large and extra-small examples of the Shouldered Food Jars. N-5 yielded the first porcelain body fabrics of the Swirl or Double Happiness pattern in bowls as well as covers, and it is the first site from which bowl covers have been recognized. Finally, N-5 produced a range of previously unrecorded ceramic artifacts which were not used in connection with food storage, preparation, or consumption. These include Decorative Temple Tiles, Candlestick Holders, an Incense Pot and a Tripod Base.

A further dimension of significance is added when one realizes that the N-5 collection is the first systematically studied archaeological assemblage of Chinese ceramics from San Francisco--the demographic, economic, and social center of the Overseas Chinese world in the western hemisphere during the second half of the nineteenth century. Throughout this period, San Francisco was the port of entry and exit for thousands of Asian laborers as well as the central locus for the import and distribution of Chinese products in America. San Francisco possessed the largest, most stable Chinese population in the New World controlled by the most strongly developed district and family associations. In addition, when compared to other areas of California where virtually every Asian was an illiterate male laborer, San Francisco's Chinese community appeared cosmopolitan, with many more Chinese females than anywhere else in the state and, since the 1850s, a small but viable group of middle class merchants and businessmen, not to mention a select few of China's upper crust.

The relative size, vigor, and diversity of San Francisco's Chinese community during the 1880s is mirrored in the assemblage of ceramics from N-5. While some of the previously described collections of nineteenth-century Asian ceramics were recovered from rural work sites, mining camps, or small Chinese settlements, the N-5 dump received the refuse of the New World's largest Chinatown. The comparative richness and extensiveness of the N-5 Chinese ceramic collection is easily understandable in this light.

A detailed, comparative analysis of the Chinese ceramics recovered from various nineteenth-century archaeological sites in California and other states of the Far West is beyond the scope of the present work. However, the material presented in this chapter will be useful to those interested

in undertaking such a task. From one perspective, it may seem that any given archaeological site associated with Chinese occupation or use is a unique entity, reflecting a distinct set of social and economic activities, such as railroad building, laundry washing, or food preparing. Yet all of these sites, scattered and isolated as they may appear, were component parts of a complex, reticulate economic and social network through which a flow of goods and workers were transported and used. Throughout the nineteenth-century, San Francisco was the central link in the core of this network. The N-5 Chinese ceramics provide evidence about this central link which, when compared to data obtained from peripheral parts of the network, will shed light upon the complex workings of the entire system.

The study of the ceramic artifacts recovered from N-5 supplement and augment the often scanty archival record of the Chinese experience in late nineteenth century California. The collection, consisting primarily of food or beverage containers and tableware, reflects the types of comestibles preferred by the immigrant Chinese populace. In addition, the N-5 assemblage contains a range of artifacts which were utilized in ritual or leisure activities. The presence of such items as ceramic opium pipe bowls or decorative temple tiles brings life and color to the study of existing historic photographs, drawings, and contemporary accounts which portray and describe the use of such implements.

The study of the Chinese ceramics from N-5 also sheds light upon the process of acculturation in nineteenth-century America. Throughout much of the popular and anthropological literature, the Overseas Chinese have been repeatedly characterized as a people who tenaciously clung to their own modes of cultural expression in spite of all efforts by the host society to assimilate them. On first glance, the evidence from N-5 tends to support such a view. While there is little doubt that members of San Francisco's Chinese community employed a wide range of Western goods, the data suggests a strong tendency to purchase and make use of imported products of traditional manufacture and character. This pattern was particularly pronounced with regard to items associated with food, but it appears to have been motivated as much by necessity as preference.

Throughout the nineteenth century, the Asian laborer, living in rural work camps or urban Chinatowns, was generally isolated and segregated

from the mainstream of Anglo American society and did not have easy access to the full range of goods and services available within the larger community. Rather, he depended for his supplies on Chinese merchants and the heads of family and district associations. These latter individuals were often involved in the lucrative import-export business with China, and they certainly appreciated the exclusive, virtually captive market which the thousands of displaced Chinese laborers must have represented.

This is not to say that the nineteenth-century Overseas Chinese did not possess a strong sense of their own traditions and a demonstrated preference to preserve and maintain their familiar customs whenever possible. Yet, there can be no doubt that this pattern was at least partially a response to residing in an externally hostile social environment. In the various parts of the American West where the Chinese lived and worked, the opportunity to enjoy traditional food and drink served on familiar tableware and consumed with customary implements in the company of one's own countrymen must have provided a major form of cultural support and solidarity for these immigrants who toiled in an all too often hostile land. Therefore, we can conclude that what may have been an already existing desire on the part of the Chinese to maintain their own cultural traditions was certainly reinforced by external discrimination and an absolute inability to assimilate with Anglo American society whether it was deemed desirable or not.

For the most part, the Chinese ceramics found at N-5 demonstrate a remarkable continuity with long established vessel shapes and modes of decorative patterning. Yet, the presence of the Anglo Shape Utilitarian Brown Ware Beverage Bottles at the site demonstrates that the Chinese ceramists were not impervious to the forces of acculturation or the demands of an export market. It is clear that these Anglo Shape beverage containers represent an experiment in producing a different type of ceramic vessel shape for distribution within a foreign market. The fact that these containers are relatively rare (being first recognized and recorded at N-5), coupled with the fact that they are both preceded and followed in time by ubiquitous beverage containers of traditional shape, indicates that this experiment in producing a ceramic vessel of novel shape was short lived and ultimately a failure which found little or no appeal with the consuming public.

It is interesting to note that in spite of the richness of the N-5 Chinese ceramic assemblage, certain categories of artifacts which have been recorded at other sites are totally absent. Among foodware and tableware, these include earthenware pans and squat bulbous jars. Items associated with ritual or leisure activities which were absent in the N-5 sample but recorded elsewhere are dice, dominoes, tiles for Mah-Jong, and markers for Go. It would be useful to know the precise reasons why such artifact types are not represented at a site so rich in other ceramic materials. However, due to the fact that the N-5 site consists entirely of secondary cultural deposition, coupled with the already noted shortcomings of the archaeological monitoring program in terms of systematic data recovery, it is unfortunately impossible to do little more than speculate about the reasons which underlie the presence or absence of any given category of ceramic artifact within the collection.

We should also point out that in contrast to the rich assortment of pottery, very few non-ceramic artifacts of demonstrable Chinese manufacture or affinity were recovered from N-5 during the course of the monitoring program. Several Chinese specimens of wood, lacquerware, and cloth were collected from two borings within N-5 during preconstruction archaeological testing in the summer of 1977 (Pastron 1977b:22). Yet, again, due to our inexact understanding of the depositional history of the site and the uncertainties of the data recovery procedures noted above, we cannot ascertain an even approximate estimate of the representation of these non-ceramic artifact types in N-5 prior to the advent of construction.

The gaps in the data noted above point up the reality that our analysis of the N-5 ceramic assemblage has merely scratched the surface of the archaeological study of the Chinese experience in San Francisco (and by extension the rest of California) during the second half of the nineteenth century. What is sorely needed to fill some of these informational gaps is the systematic, controlled investigation of primary deposits of Chinese sites in San Francisco. Such items would hopefully reflect a representative range of occupational and domestic activities, and their investigation would lend insight to questions of chronology and social and economic stratification, as well as the relationship which the Chinese in San Francisco maintained with the surrounding Anglo-American community.

In conclusion, the N-5 Chinese ceramics provide us with a rare view of the day to day lives of the average workingclass inhabitants of San Francisco's Chinatown during the early 1880s. We can see in the artifacts what the people ate and how they consumed their fare. We are able to glimpse their world of ritual and leisure as well as the escape provided by the fantasy realm of opium. The artifacts attest to the rich cultural heritage which the Chinese immigrants brought with them to the New World and which they maintained in spite of prejudice, derision, and misunderstanding on the part of their Anglo-American neighbors. This chapter, which analyzes and describes these materials, is presented as a contribution to our understanding of the Chinese experience in the United States during the nineteenth century as well as an addition to the archaeological study of ethnicity in an urban setting.

CHAPTER 10

TEAPOTS, CUSPIDORS, AND CRUCIBLES: SELECTED EUROPEAN STYLE CERAMICS

On each side of the fireplace stood two round cushions of red brocaded silk. From each a tongue of gold shot forth. What were they? Nobody ever guessed, nobody asked. Then mother placed a foot upon the golden tongue, the cushion parted and disclosed a white porcelain cuspidor. Marvel upon marvel! Everyone gasped in astonished pleasure.

Harriet Lane Levy

Pot Luck: What We Know of History Through Ceramics

Ceramic ware encodes a wealth of information concerning cultural history and social process. Its dual nature of fragility and indestructibility makes it nearly ubiquitous at archaeological sites and ideal as a chronological indicator (see Deetz 1977:46). Since pottery is largely utilitarian, it consistently provides significant insights into the everyday lifeways of past cultural groups that have disappeared or changed in the intervening years. As a window into the past, ceramics has frequently been used by archaeologists and prehistorians to assign relative dates to a range of prehistoric and historic sites, to establish chronological sequences reflecting cultural growth and change in various parts of the world, and to provide information regarding technological processes. In addition, pottery can tell us about the socio-economic level reached by a particular culture, indicate differential status within a society, and detect patterns of cultural diffusion over time. In a more limited but equally valuable way, ceramics reflects

the mundane domestic patterns of specific groups of people, including daily food preparation and consumption as well as other economic activities. It is for these reasons that archaeologists devote enormous time and energy to the study of ceramics.

In American historical archaeology, ceramics has largely been analyzed for the purpose of dating sites, especially in colonial New England and other early American sites in the eastern United States. Drawing from such works as Noël Hume's comprehensive study (1970) of American Colonial artifacts, historical archaeologists have identified three main types of pottery occurring at Anglo American historic sites: earthenware, stoneware, and porcelain. These three types of ceramics correspond to three separate time periods dating from before 1650 to approximately 1825 (see Deetz 1977: 51-52). According to this classification, the first and smallest assemblage represents sites predating 1650 and consists of plain utility earthenwares with a sprinkling of delft, Rhenish stoneware and slipware. Dating from 1650 to the late 1700s, the second group of ceramics contains a variety of fancier imported wares, which are absent in both the first and third groups, plus a vast amount of American-made utilitarian wares. Finally, the third major group, which dates from the period of the American Revolution to 1825, differs radically from the earlier two periods and is characterized by some delftware and an abundance of the popular creamwares and pearlwares manufactured at that time (see Deetz 1977: 52). For the historical archaeologist, these groupings are critical because they allow relative dates to be assigned to new sites by a comparison of ceramic assemblages and changes over time to be detected at a single site when more than one group has occupied it. Moreover, these ceramic categories reflect three key phases in Anglo American historical and cultural development, thereby telling us certain things about social processes during the early stages of American history.

While the three-period dating system briefly outlined above is well known and need not detain us further, several new approaches to the historical archaeological analysis of ceramic artifacts are worth mentioning. For instance, South's mean ceramic date formula (1972; 1974) has refined the earlier sequential model, providing greater precision in dating techniques. Using the beginning and end dates for known pottery manufacturers

of wares comprising the sample, the formula computes the mean ceramic date in order to arrive at a close approximation of the period of time a particular site was occupied. Other historical archaeologists have employed South's formula to date various sites in the United States, and some have made useful modifications in the formula itself to increase its accuracy. Recently, Bonath has applied a modified mean ceramic date formula to eighteenth-century Spanish majolica pottery recovered from a site in St. Augustine, Florida (1978: 82-92). Thus, not only English and Anglo American pottery, but Spanish pottery as well, found at historic sites in the United States is amenable to such dating procedures, thereby expanding our knowledge of time sequences for a wider variety of sites.

Searching for alternative approaches to ceramic analysis, historical archaeologists have turned their attention to the examination of probate inventories, potters' records, merchant's account books, and other documentary materials. For example, Marley Brown's comparative study (1972) of early seventeenth-century probate inventories has demonstrated that ceramics played a major role in dairying activities, and thus in the economic lives, of the New England colonists. More importantly, however, historical archaeologists have shifted their focus to the distribution and marketing of historic ceramics. A recent conference on "Marketing Ceramics in North America" addressed the issue of consumption rather than the chronology of ceramics through analysis of shipping invoices and business records. Scholars researching these matters are examining the account books of nineteenth-century general stores, for instance, in order to understand in greater detail the marketing and distribution of ceramics dating from that period (see Miller 1980). These studies trace the market networks linking producer with consumer and identify the exact socio-economic group in the local community that purchased and utilized particular ceramic vessels. Such research represents a growing interest in the areas of how merchants classified and marketed their wares, the factors influencing their decisions, and the ceramic price structure in regional markets. These new directions in the historical archaeology of European and Anglo American pottery ware found in North American sites promise to expand our awareness of the role of ceramics in human social processes.

THE SCOPE OF THE N-5 COLLECTION

The immense range of European style ceramics types recovered at N-5 near the San Francisco waterfront is partially a result of the plasticity and durability of fired clay itself, as well as the dramatic expansion and profitability of the British and, later, American ceramic manufacturing industry during the eighteenth and nineteenth centuries. The N-5 dump site literally yielded hundreds of European style ceramic artifacts, which reflect this vast diversity of imported and domestic ceramics. Consisting mainly of tableware and other household utilitarian ware items, the collection contains a majority of heavy white porcelaneous stoneware items popularly referred to with such trademark names as "Ironstone", "White Granite", "Vitreous Hotel China", "Stone China", or "Semi-Porcelain" (see Praetzellis 1979b: 10). This durable and functional type of ceramic ware, which comprises nearly two-thirds of the N-5 collection, was very common in its day, and it appears in numerous historical archaeological contexts throughout the West.

Among the N-5 White Granite and other porcelain hollowware vessels in the sample are large numbers of handleless mugs, coffee cups, tea cups, teapots, sugar bowls, soup bowls, tureens, creamers, and pitchers. The flatware shapes include different sized saucers, dishes, plates, serving platters, bowl covers, and so forth (see Figure 10.01). Other utilitarian ware types in the N-5 collection reflect personal hygiene and grooming uses, including wash basins, water pitchers, shaving mugs, soap dishes, and chamber pots (see Figure 10.02) as well as jars which contained toothpaste, shaving cream, hair pomade, and other cosmetics popular in Victorian times (see Figures 10.13, 10.14 and 10.15). In addition, there are Anglo American ceramic hardware items such as drawer pulls, door knobs, and flower pots. Architectural or industrial ceramics include mortars, bricks, sewer pipes, and the unique crucibles used in assaying precious metals (see Figure 10.18). Finally, the San Francisco collection contains ceramics related to leisure activities and decorative purposes. These include marbles, carpet balls (see Figure 10.19), dolls (see Chapter 11), miniature toys, figurines, vases, clay smoking pipes, cuspidors, and spittoons (see Figures 10.05, 10.06, and 10.07). Of course, there are also innumerable unidentifiable pottery sherds

OUR CROCKERY AND GLASSWARE DEPARTMENT.

Our stock of tableware includes only the finest selection of crockery from the best European manufacturers. American made crockery is well known to be inferior to the English and French manufacture. Our orders have hence been placed in Europe for the best and most select patterns, with manufacturers whose goods are known the world over as the finest it is possible to produce. Importing our own stock, we are not only offering a line that has no superior in the market, but we are in a position to name prices against which the retailer cannot compete. You pay what he himself pays, for we sell to the consumer just as any other importer sells to the retail dealer. The advantage of our Factory-to-Consumer system is apparent. We are constantly breaking down the wall between maker of merchandise, and the actual user.

In connection with our crockery, we desire to say that every set is most carefully packed in barrels and casks, and we seldom or never hear of any breakage. The freight is a very small item indeed, when the great saving in price is considered. This class of goods ships as first-class freight.

It is impossible to examine these goods satisfactorily at your depot. Hence we request full cash in advance on all orders. However, we practically ship subject to your approval. Any goods not found as represented, or unsatisfactory, may be returned to us and money refunded.

GENUINE ENGLISH STONE WARE CHINA.

Manufactured by J. & H. MEAKIN, Hanley, England.

No. 9810. Plain white. We guarantee these goods to be the finest and most durable earthen ware made in the world. Warranted not to craze. One set of the above will out-wear three sets of the domestic goods, and will cost but a trifle more.



✓ We Accept No Order for Chinaware Amounting to Less than \$2.50. 32

Open Stock Prices of this White Granite Ware Set.

Tea cups and saucers.....	per doz.	\$1.50
Coffee ".....		1.25
Plates, 8 inch.....		1.00
" 7 ".....		.75
" 6 ".....		.50
" 5 ".....		.25
" 7 soup.....		.50
Fruit saucers, 4 inch.....		.25
Individual butters.....		1.00
Oyster bowls.....		.50
Tea pot.....	each	.75
Sugar bowl.....		.50
Cream pitcher.....		.75
Bread plate.....		.25
Bowls, 1 pint.....		.50
" 1 quart.....		.75
Platters, 12 inch.....		1.00
" 8 ".....		.50
" 10 ".....		.75
" 12 ".....		.50
" 14 ".....		.75
" 16 ".....		.50
Bakers, 3 inch.....		.25
" 9 ".....		.50
Scallops, 6 inch.....		.75
" 7 ".....		.50
" 8 ".....		.75
" 9 ".....		.50
Soup tureen and ladle, (no stand).....		1.00
Sauce tureen, complete.....		.75
Sauce boat.....		.50
Covered dish, 8 inch.....		.75
Casseroles, 8 inch.....		.50
Covered butter dish, 5 inch.....		.25
Pickle dish.....		.50
Pitcher, 1 gallon.....		.75
" 2 quarts.....		.50
" 1.....		.25
" 1 pint.....		.50
" 1/2.....		.25

Figure 10.01: Genuine English Stoneware China From the 1890s. . . Highly durable and functional, this white porcelaneous tableware literally flooded the market in Europe and America during the last century. Hundreds of pottery factories in England and then in America produced prodigious quantities of this ceramic ware variously called White Granite, Ironstone, Vitreous Hotel China, and so forth. This advertisement from the Sears, Roebuck & Co.'s 1897 Catalogue shows the vast range of White Granite Tableware items made at that time. Not surprisingly, large quantities were recovered from the N-5 dumpsite. (Ed Torres)

and questionably-shaped slop jars, bed pans, and the like which pervade all such artifact assemblages.

While the N-5 European style pottery collection is rich in quantity and diversity--a condition reflective of San Francisco's status as a major nineteenth-century urban complex--many of the routine questions asked by historical archaeologists regarding ceramic artifacts are nevertheless inappropriate to this find. First, since archival research has already documented the N-5 site historically, we already know with a good degree of accuracy that the dump site dates from 1880 to 1885 (see Chapter 5). Therefore, analysis of the ceramics and the makers' marks for dating purposes merely corroborates what has already been substantiated. Next, because the artifacts in the dump are a secondary deposition (see Chapter 2), and because the vessels had widespread historic use, these European style ceramics cannot be accurately attributed to any one particular ethnic group. Unlike the Chinese ceramics discussed in the previous chapter, literally anyone living in the city at that time, including the Chinese themselves, could readily have utilized these ceramics. It is almost completely certain from pottery style, shape, clay fabric, and documentary evidence that all the N-5 Chinese ceramics came from China as export items and that they were exclusively used by members of the Overseas Chinese community in San Francisco during the last century; in contrast, the N-5 European style ceramics lack comparable distinguishing characteristics that associate them with a specific cultural group. These European style ceramics, then, particularly the tablewares, reflect the types of vessels in common use by a broad cross-section of Anglo American households and restaurants a hundred years ago.

It is well known to the ceramists that British pottery manufacturers flooded the American market with their wares beginning in the 1850s, and evidence of this marketing activity is exactly what emerges from an examination of the makers' marks on the N-5 European style vessels. Analysis of these marks, which is amply documented in the tables in Appendix D, indicates that the majority of the ceramics recovered from the dump were made by different pottery factories in England. The results of our analysis show that at least 49 British manufacturers supplied San Francisco during the nineteenth century, while the wares of only 10

American companies were represented. Clearly, if the material recovered from the N-5 dump is at all indicative of the marketing activities of the 1880s, then nearly 80 percent of all the pottery used in San Francisco was imported from England.

The predominance of English pottery in the American market has been noted by other authors and is fully in evidence in archaeological samples from other sites throughout the American West. Indeed, competition from British manufacturers became so severe in the nineteenth century that the fledgling American ceramic industry began pressuring Congress to enact restrictive legislation against British imports. This major economic issue is well documented by copious testimony presented in congressional hearings dealing with tariff legislation set before congressional committees in 1893. However, this competitive pressure was felt years earlier, with the first protective tariff being enacted in 1864 to levy nearly a 50 percent duty on all imported pottery (Stradling 1976:155). The greater number and efficiency of the British factories, however, made their goods considerably cheaper, and this economic fact essentially nullified the effects of the first tariff act. As a result, further domestic agitation resulted in even more restrictions--the tariff acts of 1883 and 1890. Despite these well-intentioned laws designed to protect the infant American pottery industry, however, in the 1880s the majority of the European style ceramics used in San Francisco were still being imported from abroad.

A great many of the N-5 European style tablewares possess identifying British and American factory marks which have been impressed or transfer-printed on them. All the relevant data regarding these marks, the names of the manufacturers, the locations of the factories, and the dates of production appear in Tables 10.01 to 10.06 in Appendix D. The presence of the greater number of British-made vessels is typical of artifact collections from many other late nineteenth century North American sites. Comparable collections from other sites in California and the American West which have been reported in the literature include Fort Vancouver (Ross 1972), Fort Humbolt (Jewell 1966), Fort Ross (Barclay 1976), Warm Springs (Greenwood 1979), Santa Rosa (Praetzelis 1979c), Sonoma Barracks (Praetzelis 1976), Sutter's Fort (Broadbent 1961), Old Sacramento (Praetzelis 1979b), Farallones Islands (Pilling 1952), San Jose (Cartier 1979),

THIS TOILET SET \$2.25 TO \$4.35.

10 Piece Toilet Set for \$2.25. 12 Piece (exactly like illustration) \$4.35.

For \$2.25 or \$4.35 you can get an elegant Toilet Set that will best any bedroom. The manufacturer of this ware has a reputation second to none, and no customer will have reason to be displeased in any way with his purchase.

This toilet set is of high-grade white granite, latest style, shape and finish, and guaranteed in every respect. Our special price, packed and shipped to any address, for 12 piece set, exactly as illustrated..... \$4.35
For 10 piece set, same as cut without the slop bowl and cover.....\$2.25

Order these goods direct from us and you get them at what your retail dealer has to pay.

No. 9718, 10 Piece Set: Basin and pitcher, mug, brush vase, hot water pitcher, soap dish, cover and drainer, chamber and cover. Our special price ..\$2.25

No. 9720, 12 Piece Set: Same assortment as 10 piece set with slop jar and cover added. Our special price.....\$4.35

If you have been accustomed to buy your crockery at home, you can figure up how much profit you have been paying the retailer, if you buy one of these High Art Sets.



Figure 10.02: High Grade White Granite Toilet Set. . Besides Tableware items, other utilitarian ware types such as these toiletry articles were made out of the same clay body. According to this Sears, Roebuck advertisement from 1897, a complete Toilet Set including water basin and pitcher, shaving mug, soap dish with cover and drainer, and chamber pot with cover cost only \$2.25! Artifacts similar to those depicted in this advertisement were unearthed from the N-5 site, pointing to the widespread use of these utilitarian ceramic items in nineteenth-century San Francisco. (Ed Torres)

Ventura (Benté 1976a), Irvine (Chace 1969), and Lovelock, Nevada (Praetzellis 1979a). While full discussion of the N-5 European style ceramics in relation to those found in all the above sites is beyond the scope and intention of this chapter, all pertinent comparative data regarding manufacturers' marks and dates of production appear in Tables 10.08 through 10.12 in Appendix D.

Because the European style ceramics from N-5 and from other locations along the Wastewater Management Program's sewer alignments have been well documented in the literature and because the relevant archaeological data regarding these wares in the collection are compiled for the interested research specialist in the tables in Appendix D (thus eliminating from extended discussion the common White Granite ware), we have chosen instead to examine specific artifact types frequently neglected by historical archaeology. Included in the discussion which follows are the Rockingham Wares (particularly the "Rebecca at the Well" teapots and cuspidors), apothecary jars and transfer-printed pot lids, ceramic infant nursing bottle caps, industrial crucibles, and miniature ceramic toys. All of these ceramic items reflect some special aspect of San Francisco life in the nineteenth century that goes unnoticed in most historical accounts of the city. Through this selective approach to the European ceramics in the N-5 collection, we find out that the San Francisco Victorians favored brushing their teeth with cherry-flavored toothpaste, chewed copious amounts of tobacco and spit the juice into ubiquitously placed spittoons, and were worried about their hair falling out to the extent of ardently applying scented bear's grease and Wakelee's Philicome to prevent baldness. We also learn that nineteenth-century mothers artificially nursed their babies from glass bottles capped with ceramic fixtures from which crude rubber nipples protruded and that they served afternoon tea from the biblically inspired Rebecca at the Well teapots. During the same era, many San Franciscans were occupied refining precious gold and silver ores in specially imported English Battersea crucibles, while city children busied themselves playing games with ceramic marbles and dolls. All in all, the diverse ceramic objects found at the N-5 dump touch into many of the recessed corners of people's lives during the early days of the city.

VERSATILE ROCKINGHAM WARE FOR TABLES AND FLOORS

Second in quantity only to the porcelaneous White Granite or Hotel China wares, Rockingham Ware constitutes a very common tableware and crockery component of the N-5 sample. A uniquely mottled brown ceramic ware, it was manufactured in a wide assortment of shapes and styles, and it is found today in ample quantities in dozens of archaeological sites across the United States.

Giving the appearance of tortoise shell, Rockingham pottery possesses a distinct variegated or mottled brown to yellow-brown glaze, occasionally touched with streaks of green. This glazing effect is largely produced by lead oxide containing manganese particles. The body fabric consists of a yellow or creamware made from a yellow to buff-colored clay, though in some ceramic factories the characteristic Rockingham glaze was applied over a white clay body. According to one source, the Rockingham body is traditionally composed of four parts red to one part china clay, having either a single glaze layer or a second clear overglaze (Binns 1901: 43).

The Marquis of Rockingham first produced this pottery on his estate at Swinton, England, in 1796. Originally a simple yellow ceramic glazed a rich dark brown, it soon became widely known as Rockingham Ware, Queensware, or English Brownware. Mottling of the various brown and beige hues was achieved by spattering the glaze over the vessel before the final firing. This type of pottery ware was first imitated in the United States at ceramic factories in East Liverpool, Ohio, in 1841. Rapidly becoming popular in America, many domestic factories began producing it in large quantities and a range of styles. Centers of production were located in Zanesville, Cincinnati, and Akron, Ohio, and in Pittsburgh, New Brighton, and Beaversfalls, Pennsylvania, as well as in Baltimore and Boston. Later, various places in New Jersey took up production as well--the American Pottery Works in Jersey City, the Salamander Works in Woodbridge, and the Swan Hill and Abraham Cadmus pottery works in South Amboy. However, it was in the potteries in Bennington, Vermont, where the most attractively mottled and most skillfully designed Rockingham Ware was produced, and pottery from these factories is now properly regarded as Bennington-Rockingham Ware (O'Connell 1980:7).

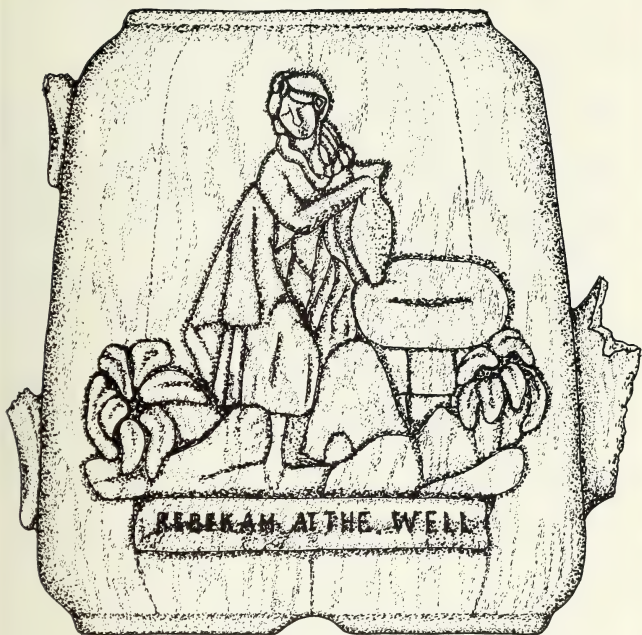
In 1849, Christopher Webber Fenton of Bennington, Vermont, received a patent from the United States government for his improved glazing pottery formula called "Flint Enameled Wares". Considered a great advance over the English Rockingham Ware, it gave greater durability and variety of color (Pitkin 1918:29). Flint Enameled Ware was touted as having greater hardness and being more brilliant in color, although it appears quite similar to the original Rockingham Ware made in England. Spargo mentions that the major pottery manufacturers used flint glaze on either a white or a yellow clay body fabric, producing the variegated brown colors with manganese (1948:15). Other potteries modified the glaze formula to create complex color combinations of blue, green, and yellow mottling. Crushed manganese, copper oxide, cobalt chloride, and uranium oxide produced the browns, greens, blues, and yellow colors, respectively. The Flint Enameled Ware simply employed a new method to apply minute amounts of these mineral oxides on the glaze slip before firing. The characteristic glaze irregularities and streaking of Rockingham Ware resulted from the fusing of the glaze at low temperatures with the mineral component acting as a catalyst (cf. Spargo 1948:17). Recently, O'Connell has pointed out that the American made Rockingham Ware's brown glaze was spattered on with a paddle while the ceramic vessel was rotated slowly on a wheel and that "variations in color are achieved by applying the glaze more heavily in some spots, by permitting it to streak, by thinning it, or by other intentional or accidental means" (1980:7). Because of this process, no two pieces of Rockingham Ware are exactly alike. This has added to the uniqueness and occasionally the great value of some of this type of pottery. However, given the relatively close similarity of the Flint Enameled Ware and other mottled brown glazed ceramics, they are all gathered under the category of Rockingham Ware for the purpose of this type classification.

During the early nineteenth century, English potters made extremely popular and often very whimsical figural bottles from Rockingham Ware, such as the 1830s "Mermaid" flasks which held a British sailor's ration of rum. Between 1849 and 1858, the Bennington-Rockingham Ware "Book" flasks came into vogue, and the Vermont potters attempted to make their glaze the color of richly tanned book-binding leather (O'Connell 1980: 6-7). Within this flexible ceramic tradition, there were also the famous

"Coachman" bottles, sometimes called "Tobies", as well as the improbably looking "Boot" flasks which were shaped like high-buttoned shoes of the day. Indeed, virtually a limitless number of figural-shaped forms were cast in Rockingham Ware by both English and American potters during the last century. Some of the rarer and better preserved pieces have been recently auctioned for hundreds of dollars (O'Connell 1980:8). Yet, even in 1852, C. W. Fenton's Bennington-Rockingham "Greek Temples" sold in Boston for \$100 each, while less complex figures made at the same factory sold by the dozen at the following prices: "Dog with Basket", \$13; "Lion and Base", \$24; "Cow Creamers", \$4.50; "Cow Reclining"; \$24, and "Swiss Ladies", only \$3.50 (Clement 1944:22).

These bottle shapes and figurines, however, by no means exhaust the range of Rockingham Ware styles. Pottery from this ceramic material includes a wide variety of tablewares and a myriad of other utilitarian pieces such as coffee pots and teapots, sugar bowls, creamers, covered dishes and bowls, beakers, goblets, mugs, pitchers of many sizes and patterns, mixing bowls, cake pans, pie plates, baking dishes, and so forth. In addition, there are various size jars, flower pots, jardinières, vases, and even picture frames, as well as inkwells, desk sets, and piggy banks. Besides different decorative animal statuettes, there are Rockingham Ware doorknobs and drawer pullers, soap dishes, washing boards, rolling pins, candlesticks, slop jars, bed pans, and cuspidors. Unique pieces are relatively rare because vast quantities of this popular pottery were mass produced by being poured or pressed into plaster of Paris molds. In this way innumerable copies of a given shape type could be rapidly reproduced for the general market. Discussion of the various Rockingham Ware types and domestic and foreign manufacturers of this ware appears in Barber (1904:94); Godden (1964:739); Graham (1948:96); Mankowitz and Haggart (1957:194); Ramsay (1947); and Praetzelis (1979b:9).

Understandably, the N-5 sample of Rockingham Ware does not include examples of all of the various shapes given this versatile ceramic ware, nor does it include specimens of the older bottle shapes and figurines. However, the collection does contain a number of Rockingham Ware teapots and teapot lids, coffee pots, sugar bowls, and creamers, along with fragments of broken pitchers, vases, door knobs, bed pans, and several cuspidors.



N5-M-974

2 CM



Figure 10.03: Rebecca at the Well Rockingham Ware Teapot. . Some of the most popular ceramic ware pieces, the Rebecca at the Well teapots were used in thousands of homes in America in the late 1800s. Like other Rockingham Ware ceramics, this teapot is made from a yellow clay body with the characteristic glossy, mottled brown, lead oxide glaze. In 1851, Charles Coxon redesigned the Rebecca at the Well biblical motif from an earlier Staffordshire pattern appearing on pitchers, and his version was quickly reproduced by dozens of American pottery factories on the East Coast. The crude quality of the impression on the 2-quart teapot found at N-5 suggests that it was an inexpensive model. (Jane Dill)

These artifacts retrieved from N-5 clearly substantiate the presence and popularity of Rockingham Ware ceramics among nineteenth-century San Franciscans.

According to Clements, American pottery manufacturers were producing a wide variety of Rockingham Ware household items, including six different sizes of teapots by 1852 (1944:22). Among the 25 teapot lids and 12 more or less intact teapots, the N-5 collection includes several of the various standard sizes and a fairly good example of one of the more celebrated styles commonly known as the Rebecca at the Well teapot (N5-M-974). This highly popular teapot, which was found in homes throughout the last century, deserves special mention here.

Rebecca at the Well Teapot

Although the N-5 teapot is missing its lid, spout, and handle, the pastoral scene of Rebecca drawing water at the well is preserved on both sides of the pot (see Figure 10.03). The image impressed on the molded teapot depicts a young peasant woman with tied-back hair holding an oval-shaped water jar filled from an open well at the bottom right of the scene. A vaguely recognizable palm tree graces the design at the lower left, aptly suggesting a Middle Eastern biblical setting. Although the N-5 pot must date to no later than 1880 to 1885, comparable Rockingham Ware teapots were still being sold by Montgomery Wards and Company in 1895 for 40 cents (see Figure 10.04). Ward's **Catalogue**, which includes examples of other useful Rockingham Ware vessels, also indicates that the Rebecca at the Well teapot was available in a range of sizes such as one pint, one quart, three pints, two quarts, and a large three-quart pot. The N-5 sample is the two-quart variety holding eight to ten cups, a size well suited to serving a large family or boarders in a roominghouse where several people enjoyed afternoon tea together.

Although the Rebecca at the Well two-quart teapot no doubt served its function well for many years, the quality of the impressed figure of Rebecca indicates that the pot was an inexpensive model. Its poorly defined features show that the mold used in making this vessel derived from an impression of another teapot, not from an original sculpted prototype. Even the impressed phrase, "Rebekah at the Well", typically found beneath the design, is unreadable. Despite the obvious degeneration

of the image from the crisp, sharp definition found on better quality ware, this particular teapot possesses an impressed manufacturer's mark, an "E" within a circle, placed on the bottom of the vessel. Interestingly, this mark constitutes the only such mark on any of the Rockingham Ware in the entire N-5 collection, but it is even more inexplicable that the circled "E" does not correspond to any of the 19 known pottery manufacturers who made Rebecca at the Well teapots, nor does it seem to correspond to any other Rockingham Ware factories (see Clarke 1978:17-20). Therefore, the exact factory of origin of this particular specimen remains a mystery.

With some degree of certainty, however, we do know that it was an American, Charles Coxon, who imitated and redesigned the Rebecca at the Well motif for American audiences from an earlier pattern used on pitchers produced by Samuel Alcock and Company in Burslem, Staffordshire. This English pottery manufacturer had been in existence between 1830 and 1859 (see Godden 1964:28 and Clarke 1978:17). In 1851, Coxon's reinterpretation of the Rebecca at the Well scene was reproduced on Rockingham Ware teapots made by Edwin Bennett of the E. & W. Bennett Pottery in Baltimore. Finding ready acceptance, the Rebecca at the Well teapots quickly became a popular household tableware item in America. Manufactured steadily for over fifty years, it finally disappeared from the market and American homes in the early 1900s.

Nearly all the domestic potteries making Rockingham Ware soon copied Coxon's famous Rebecca at the Well design with little modification, and by the end of the 1850s, about 20 different manufacturers in the eastern United States were making Rebecca at the Well teapots (Stradling 1976: 154; Clarke 1978:20). However, by far the greatest source for the various sizes of this special teapot was East Liverpool, Ohio, where 14 independent potteries responded to the regular and constant demand for such pots from the mid-1850s to the turn of the century (see Barber 1904). In spite of this popularity, or perhaps because of it, there is no proof that the Rebecca at the Well teapots were ever manufactured by any of the better quality Bennington, Vermont, potteries (see O'Connell 1980:8). Furthermore, while there was a prolific outpouring of teapots in this style, comparative historical archaeological investigations and archival research

Brown or Rockingham Ware. Rockingham Pitchers.



	Each.	Per doz.
54833 1 pint	\$0.10	\$1.08
1 1/2 pint .....	.12	1.30
1 quart .....	.15	1.62
2 quart .....	.28	3.00
3 quart .....	.35	3.78

Rockingham Tea Pots.

	Each.	Per doz.
54834 1 pint	\$0.25	\$2.74
1 quart .....	.28	3.00
3 pint .....	.30	3.24
2 quart .....	.40	4.32
3 quart .....	.45	4.86



Rockingham Oval Bakers.

	Each.	Per doz.
54835 Oval Bakers, 7 inch	\$0.08	\$0.87
Oval Bakers, 8 inch .....	.10	1.08
Oval Bakers, 9 inch .....	.12	1.30
Oval Bakers, 10 inch .....	.14	1.52
Oval Bakers, 11 inch .....	.17	1.84

Rockingham Pie Plates.

	Per doz.
54836 Pie Plates, 8 inch	\$0.72
Pie Plates, 9 inch .....	.85
Pie Plates, 10 inch .....	.91



Jardinieres.

54850 Fancy Jardiniere, made of fancy clay, handsomely decorated and tinted. These make very handsome window ornaments when filled with plants or ferns.

6-inch	\$0.25
7-inch .....	.35
8-inch .....	.45



54852 Fancy Shell Design Jardiniere, remarkably handsome, finished in assorted tints and gold. It measures 8 1/2 inches high and 9 inches wide. This is really exquisite and must be seen to be appreciated.

Price



54854 Fancy Shell Design Jardiniere, finished in the same exquisite manner as 54852; design is well shown by cut.

Price



Flower Pots.

54856 Fancy Flower Pots, finished in white and red and gold leaf. Our price is for pots and saucers. We cannot sell them separate.

5 inch, per dozen	\$1.75
6 inch	2.75



Figure 10.04: Rockingham Ware Teapots and Pitchers, 1895. . Rockingham Ware pottery included a wide variety of useful and decorative items such as teapots, cups, creamers, pitchers, wash basins, cuspidors, door knobs, candle sticks, and figurines and statuettes, to name a few. This Montgomery Ward & Co.'s 1895 advertisement shows some of the Rockingham Ware items that were available, including the Rebecca at the Well Teapots. A 2-quart Rebecca at the Well Teapot similar to the one found in the N-5 collection cost only 40 cents, an affordable price for most Victorian families. (Ed Torres)

reveal that very few other vessel types ever employed this motif. Admittedly, some Rockingham Ware sugar bowls, creamers, and pitchers made in America exhibit the Rebecca at the Well design, but the numbers are vastly fewer than those of the teapots.

It is possible that the particular motif in part explains the widespread popularity of the ceramic vessels, for the Rebecca at the Well image recalled an important Old Testament story that no doubt held more meaning for Europeans and Americans of the last century than it does today. This does not mean that our forebearers were necessarily more devout than we are today, but simply that they were more conversant with biblical stories and their significance. By examining the textual passages relevant to this motif, it is possible to gain a small glimpse into the world view of those who daily poured their tea from such vessels.

The Rebecca at the Well story is found in Genesis, Chapter 24:16, which deals with Abraham's search for an appropriate wife for his son Isaac. Unable to arrange a suitable marriage from among local women, Abraham sends one of his servants to a village in Iraq to select a bride from among distant relatives. The servant, anxious over the responsibility of his choice, asks Jehovah for a sign by which he will know which woman to choose. He is told to ask one of the village girls for a drink of water, and if she agrees and offers to water his camels, too, then she is the designated wife for Isaac. According to the biblical verses, while this servant was still praying to the Lord, a beautiful young girl arrived with a water jug on her shoulder which she filled at the spring. The servant then requested water from her, and she gladly offered him some, saying she would draw water for his camels as well. Abraham's servant was overjoyed, since he knew who Isaac's wife would be. Eventually, the young girl, whose name of course was Rebecca, became Isaac's wife.

Rebecca's purity, generosity, and virtue made her the ideal wife for the son of the Old Testament patriarch Abraham, and it is these qualities that underlie the imagery of the motif and undoubtedly contributed to the popularity of the teapots. The biblical story also suggests the miraculous workings of the hand of God in the affairs of men and the sanctified nature of matrimony. Without doubt, this well-known image impressed on the teapots was intended to invoke the story of Rebecca, invariably

conveying to those who used such vessels the significance of the biblical message. Further, the Rebecca at the Well teapot may well be the first major commercial attempt in American pottery manufacturing and marketing to attach a popular religious theme to a utilitarian piece of ceramic ware. Whatever the case, it was a highly successful idea which found favor with many Americans and no doubt reflected the worldwide and cultural outlook of the people who used it.

Finally, it is interesting to compare the Rebecca at the Well teapot with the six-sided Chinese "Character with Figures" porcelain teapots also recovered from the N-5 dump site (see Chapter 9). While the Chinese and Anglo teapots were used by two distinct and separate ethnic communities in nineteenth-century San Francisco, they nevertheless share something more than just functional equivalence. What is remarkable about these two pots is that each conveys a particular legendary story containing moral, ethical, and religious ideals to the respective socio-cultural groups who utilized the vessels. Examining the figures and characters on the Chinese teapots, we learn about significant Chinese cultural heroes and heroines who figure significantly in history, mythology, and religious lore. Wen Ch'eng-hsiang, the martyred prime minister, epitomizes social duty and loyalty to king and ruler, while Ts'ao O exemplified filial piety and devotion to family and relatives, cherished ideals in Chinese Confucian thought and ideology. These and the other characters painted and glazed onto the porcelain teapots carried special meaning for the Chinese in much the same way that the image and motif of Rebecca at the Well encoded meaning about Western cultural tradition and Judeo-Christian religious values for nineteenth-century Anglo Americans.

Rockingham Ware Spittoons and Cuspidors

Besides the Rebecca at the Well teapot, the N-5 Rockingham Ware ceramic sample includes two more or less complete spittoons, or cuspidors, as they were commonly and perhaps more politely called a hundred years ago (see Figures 10.05 and 10.06). From the illustrations, it is clear that both of these vessels are unique in shape and design. While spittoons were a common part of everyday American life during the nineteenth century, today they have all but disappeared from our lives. Gone is the habit of

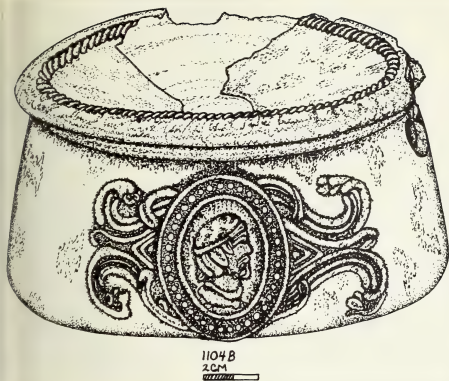


Figure 10.06: Rockingham Ware Medallion Spittoon. . . Very different in form from the Scallop Shell Spittoon, this smaller and darker brown Rockingham Ware spittoon is decorated on either side with the impressed image of a man's profile in medallion border. The identity of the bearded gentleman wearing a headband is obscure. Nonetheless, this spittoon evokes a strong masculine association. Both spittoons have side openings from which accumulated tobacco spittle could be poured out.

Figure 10.05: Rockingham Ware Scallop Shell Spittoon. . . Now nearly things of the past, spittoons, cuspidors, and chewing tobacco were prominent articles in American life in the nineteenth century. Both spittoons and cuspidors function as containers for the expectorated spittle produced from chewing tobacco. The brown glaze of the Rockingham Ware spittoons conveniently camouflaged the tobacco juice spat into them. (Ed Torres)



chewing tobacco and spitting out the accumulated saliva--despite a recent minor resurgence of this practice among country and western music aficionados and urban cowboys. During the 1800s, tobacco was largely smoked in clay pipes or specially prepared for chewing. For those who preferred the latter, spittoons and cuspidors were essential paraphernalia found on the floors in several rooms in homes, boarding houses, restaurants, saloons, and private clubs. Many public buildings provided cuspidors for their patrons, and even city offices were likewise equipped. They were as ubiquitous as today's ashtrays.

Usually, chewing tobacco was not really chewed. Instead, a wad or "plug" of finely cut aromatic tobacco was lodged in the mouth between the lower gums and the inside of the cheek near the openings to the saliva gland ducts. Left in place while saliva accumulated in the mouth, the tobacco gradually dissolved and released nicotine into the body through blood vessels lining the gums. Periodically, the tobacco chewer had to spew out the excess yellowish-brown saliva that built up in his mouth until all the tobacco dissolved and the chew was completed. While chewing tobacco was mildly addictive and flagrantly pleasurable, spitting into cuspidors was accepted throughout the nineteenth century as socially tolerable behavior. Except in rural areas, this predominantly male practice (and spitting itself) soon became distasteful to most middle class Americans, however, and with the advent of widespread cigarette smoking after the turn of the century, tobacco chewing and the spittoon became things of the past.

While "spittoon" and "cuspidor" in common parlance are interchangeable terms, each technically designates a distinct shape type. Spittoons are mainly short, wide, cylindrical vessels possessing an inward sloping funnel top that culminates in a relatively small one-to-two inch center opening. On the other hand, cuspidors have a distinctive rounded bowl or cylindrical lower portion which extends upward to a constricted neck topped with a broadly flaring, wide-mouthed, funnel-shaped opening of several inches, similar to the squat bulbous vase. The 1895 Ward's **Catalogue** showing both spittoons and cuspidors indicates this difference in shape (see Figures 10.08 and 10.09 and compare with Figures 10.05, 10.06, and 10.07).

In addition, spittoons, on the average, appear to have been smaller and lighter than cuspidors, which were designed with broad, heavy bases to withstand being tipped or kicked over while resting on the floor. The shape of the spittoons also suggests that they were made for individual rather than group use. Perhaps this difference is reflected in the etymology of the term cuspidor which derives from the Portuguese, cuspidouro, suggesting a collective activity and meaning a "place for spitting". In addition, while the cuspidor usually remained on the floor and people bent over it to spit, the spittoon could more easily be lifted by hand to receive the expectorated tobacco spittle. These distinctions may be moot, but the two terms likely reflect slightly different vessel types performing related functions.

Nineteenth-century spittoons and cuspidors were manufactured in a variety of materials and designs. The most popular ones were made from either metal or heavy ceramic ware, although there was even a type of spittoon sold by Ward's made from indurated wood fibre ware. This latter material was a treated, fire-hardened wood product used in making different kinds of utilitarian containers without seams or joints and impervious to hot and cold liquids (cf. Ward's 1895 **Catalogue:587**). The most expensive metal cuspidors were made out of brass, while nickel-plated and "japanned" or colored metal enamel ware vessels were somewhat less costly, selling in the 1890s for 35 to 16 cents respectively (cf. Ward's 1895 **Catalogue:438** and Figure 10.08). Both spittoons and cuspidors were also manufactured from earthenware, as well as White Granite ironstone and the finer porcelain ceramic materials (see Figure 10.09). The N-5 collection has four examples of the large, heavy, vitreous, white Hotel China cuspidors (see Figure 10.07) but no samples of the handpainted China ceramic vessels like those advertised by Ward's (see Figure 10.09). If price is a guide, the handpainted floral design cuspidors produced toward the end of the nineteenth century were probably being purchased by the more affluent classes of San Francisco, since these types sold for as much as \$1.00 each in 1895.

The N-5 Rockingham Ware spittoons, on the other hand, were both inexpensive and exceedingly popular, largely because the tobacco spittle spewed into them was the same color as the mottled brown Rockingham overglaze. Unlike the White Granite cuspidors (Figure 10.07), the two N-5

Figure 10.07: Vase-Shaped White Granite Cuspidor. . . Distinctively shaped with a heavy, squat, bulbous base leading to a constricted neck and widely flaring mouth opening, White Granite Cuspidors were ubiquitous in nearly every home, boarding house, saloon, and public building in San Francisco in the nineteenth century. Often larger, heavier, and broader than spittoons, cuspidors sat firmly on the floor. One had to bend over them to spit rather than lift them up as one would do with the smaller Rockingham Ware spittoons. (Ed Torres)



Cuspidors.

54625 Earthenware cuspidor, painted and decorated with leaves and flowers. Each \$0.29

54624 Earthenware cuspidor, new shape, hand painted in natural colors. Each \$0.30

54625 Ironstone China Cuspidor, (beetle) and not deep in the center, nicely decorated in floral design. Each \$0.44

54626 China Cuspidor, decorated. Each \$0.20

54627 China Cuspidor, fluted and decorated with leaves and flowers in bright colors, and remarkably cheap. Each \$0.20

54628 Fancy high new shape cuspidor, large size, stands 4 inches high and is nicely decorated. This is a very pretty article and a change from the ordinary every day style cuspidor. Price \$1.00 Per dozen 11.00

54629 China Cuspidor, very light and handsome, bowl shape and slightly hand painted with floral designs. Price \$0.85

Figure 10.09: Floral Design China Ware Cuspidors. . . Along with the brass and enameled metal or "japanned" spittoons and cuspidors, Ward's in 1895 advertised a group of very decorative earthenware, ironstone, and porcelain pots. Like the metal ones, the ceramic cuspidors ranged in price from about 20¢ to \$1.00. The wide variety of design and material indicates that tobacco chewing and spitting was at one time as common as cigarette smoking and ashing into a special "ashtray" is today.

Figure 10.08: Metal Spittoons and Cuspidors. . . This illustration from the Montgomery Ward & Co.'s 1895 Catalogue shows the difference in shape and style between spittoons and cuspidors. Both were made from a variety of materials—metal, ceramic, and indurated wood fiber being the most universal.

Spittoons.

54510 Spittoons, japanned, assorted colors. \$0.10 See Index for other spittoons

Protection Cuspidors

54515 Handsomely ornamented and secured to a mat 12 inches in diameter; cannot be tipped over; can be detached from the mat for cleaning. Three colors, blue, green and red, japanned. No f. Each \$0.24 Per dozen 2.00

Nickel-Plated Cuspidors.

54514 Cuspidor, nickel plated, full size. Each \$0.35 Per dozen 4.00

Solid Brass Cuspidors.

54516 Cuspidor, solid brass, has broad bottom, large opening in top; cannot be tipped over easily; is heavy full size 8 1/2. Each \$0.95 Per dozen 10.20

Polished Brass Cuspidors.

54518 Cuspidor, polished brass, not nickel plated, has oxidized ornamental band around base, a very handsome pattern, is full size. Each \$0.60 Per dozen 6.48



Rockingham Ware spittoons clearly possess considerable character and stylistic individuality (see Figures 10.05 and 10.06). The larger of the two has a series of approximately 12 nearly lifesize scallop shells molded in a circle around the upper rim of the slightly lobed, bowl-shaped base (N5-U-86). Each molded shell is at the head of an interior sloping tapered panel; all of these shell panels are molded together to form the top funnel which leads to a small 4 cm. diameter hole for the expectorated tobacco juice. This particular scallop-shell style spittoon is made of a fairly thick yellow-cream stoneware clay body with the typical variegated Rockingham brown exterior surface glaze. It measures 24 cm. in maximum diameter and stands about 10 cm. in height at the lobed shell rim, dropping to just about 2 cm. from the interior of the base to the bottom rim of the central funnel opening. In contrast to the cuspidors, this scallop-shell style spittoon has a convenient side opening, also a scallop shell, for pouring out the accumulated spittle.

In her study of early New England pottery, Watkins illustrates a spittoon rimmed with scallop shells which is very similar to the one in the N-5 sample (1950: Figure 122b). Apparently, these particular Rockingham Ware spittoons were produced by the Boston Earthenware Manufacturing Company in the 1850s, and it is conceivable that the N-5 scallop shell spittoon is in fact from this Boston pottery factory. However, the very vaguely impressed oval mark on the bottom of this spittoon frustrates attempts at a positive identification. Such a mark may indeed indicate that the N-5 scallop-shell spittoon was merely a "knock-off" or imitation made from a mold taken from another vessel.

The second Rockingham Ware spittoon in the collection is entirely different in style and shape (N5-U-575) (see Figure 10.06). It is smaller, thinner-walled, darker brown in color, and more cylindrical in body form than the scallop-shell style spittoon. Two medallion figures impressed on either side of the vessel make it unique. Difficult to identify, the figures are male heads in profile centered within an oval frame with four symmetrical floral streamers emanating from the sides. The bearded, longhaired gentlemen in the medallion who wear what looks like a headband or soft cap suggest some popular historical personality, a famous pioneer, a legendary mountain-man, or a cultural hero.

This medallion style Rockingham Ware spittoon is pot shaped with slightly tapering straight side walls. It measures 16 cm. at maximum base diameter and stands 9 cm. in height at the top rim. The funnel top is smooth and gradually slopes down to the center of the vessel, leaving a 2.5 cm. opening for the spittle to run into. Like the scallop-shell spittoon, this one has a convenient oval side opening on one side under the rim, equidistant from the two medallions. Between them (opposite the oval opening) runs a seam line which indicates the use of a two-piece mold in the manufacturing process. Given this vertical seam, it is evident that each side of the double mold had the "negative" impression of the medallion design centered on respective mid-points. While there is no maker's mark impressed on the bottom of this vessel to help in identification, there is little doubt that in color, design, and function this spittoon was firmly part of the adult male world of nineteenth-century San Francisco.

In sum, Rockingham Ware vessels were highly versatile, popular, and relatively inexpensive, and a broad range of items was made from this distinctive pottery which was widely utilized by Anglo Americans and European immigrants in San Francisco a hundred years ago. Judging from the quality of the pottery ware found at N-5, its price, and the diverse utilitarian and decorative forms it took, Rockingham Ware was primarily associated with white lower-middle and middle-class socio-economic groups. Though exceptionally fine quality Rockingham Ware figurines and tablewares may have been included in the households of San Francisco's wealthier families, they more likely possessed the same vessel types, teapots and spittoons, for instance, made of more expensive handpainted and gilded porcelain China wares coming directly from England's Staffordshire factories.

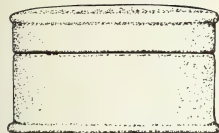
FOR PERSONAL HEALTH AND HYGIENE: EARTHENWARE APOTHECARY JARS AND LIDS

Equally as widely used and as much a part of San Francisco life as the Rockingham Ware pottery were ceramic apothecary jars, items commonly found in most nineteenth-century homes (see Figures 10.10 and 10.11). Throughout the 1800s these convenient containers--often capped with stunning pot lids advertising the content and manufacturer's name--were used for a variety of purposes, particularly for packaging pharmaceuticals and cosmetics. Essential commodities contained in these jars typically included cherry toothpaste, saponaceous shaving cream, cucumber cold cream, bear's grease and other hair pomades, medicinal ointments, and soothing unguents, as well as potted meats and fish pastes. Dozens of brands of these products came packaged in the various-sized ceramic jars. While the plain jars may have been thrown away when empty, those boasting intricate black and white or color transfer-painted lids were usually recycled for other personal uses. In fact, these beautifully decorated nineteenth-century "pot lids", as they are called, are now avidly sought by contemporary collectors. Given this current interest, the apothecary jars and lids from the N-5 dump site take on renewed significance, stimulating research into a little known area of historical archaeology and a vaguely remembered aspect of San Francisco's past.

Characteristically short and flat, the cylindrical apothecary jars were made from a white earthenware body fabric similar to the vitreous or glassy White Granite tablewares but much finer in quality. Both the jars and the lids were fully coated with a thin clear glaze. While these containers were manufactured in a wide range of sizes, they are for the most part shallow vessels, sometimes having a slightly cupped interior cavity. All possess indented rims upon which sit gently domed lids. Mass-produced in pottery factories located solely in England, these jars and lids were prodigiously exported throughout Europe and America. During the 1850s, S. Maw, Sons of London was one of the major producers of these jars which were purchased by the caseload by pharmacists and proprietary drug manufacturers in the United States (see Chapter 7).

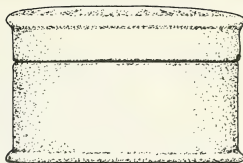
Widespread use of ceramic apothecary jars in San Francisco is clearly substantiated by data from the N-5 site. A minimum number of 74 of these containers in all sizes was found, in addition to 24 miscellaneous-size jars. Some 32 plain white pot lids, 8 pictorially painted ones, and 10 miscellaneous lid sizes were also unearthed at the site. The apothecary jars and their corresponding lids were produced mostly in the standard sizes of 1/4 oz., 1/2 oz., 1 oz., 2 oz., and 3 oz. (see Figure 10.10). There were also 3/4-oz. containers as well as much larger 6-oz. jars with distinct flat lids (see Figure 10.11). As reflected in the sample, the most popular and common sizes were the 1 oz. and 2 oz. containers, which made up 75 percent of the total number of vessels. The transfer-printed pot lids found at N-5 fit only the 2-oz. jars, though smaller as well as larger painted pot lids are depicted in collectors' catalogs and have been seen in private collections (see Clarke 1970; Ball 1970; Dale 1977; Heath 1977; Swanson 1978; and Sonny Jackson personal communication). The numerous 1-oz. jars are just under 4 cm. in height and 6.5 cm. in diameter, while the 2-oz. containers are slightly over 4 cm. high and approximately 7.5 cm. in diameter (see Figure 10.10). Other apothecary jars and lids are proportionally smaller or larger.

For the most part, the jars and lids are complete, with only minor cracks and chips. Well designed and constructed with a substantial stoneware body, their thick sidewalls and ample bases lent strength and durability to the containers. The heavy bases usually outlined by a narrow flanged rim added considerably to the stability of the jars, and their entire form and structure helped prevent breakage during shipping and use. Because they were export items, they were made strong enough to withstand the rigors of transport, and this durability appealed to the proprietary drug and cosmetic manufacturers who affixed their own labels to the jars. Consumers also benefited by having pharmaceutical preparations and toiletries packaged in these virtually unbreakable containers. Unintentionally, of course, it is this inherent strength which accounts for their excellent state of preservation in the N-5 dump for nearly one hundred years.



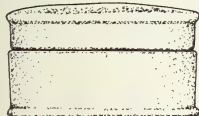
2 oz.

NS-T-37
NS-N-414



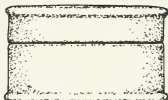
3 oz.

NS-FF-85
NS-U-73



1 oz.

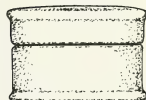
NS-N-192
NS-P-130



1/2 oz.

NS-Y-38
NS-T-32

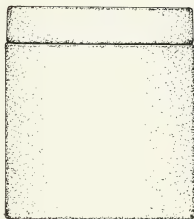
2 CM



3/4 oz.

NS-P-146
NS-U-567

Figure 10.10: Apothecary Jars Used by Pharmacists and Proprietary Drug Manufacturers. . . Dozens of essential products such as toothpaste, cold cream, hair pomade, medicinal ointments, and even potted meats and fish paste came packaged in these highly durable ceramic containers. Characteristically short and flat with close-fitting domed lids, these plain white cylindrical vessels were mass produced in England in a range of sizes, the most popular being the 1 and 2 ounce jars. Large quantities of them were imported by San Francisco drug manufacturers who filled them with their own products and affixed their own paper labels. Jars of this type continued to be used until World War I, when they were gradually replaced with similar opaque glass jars having metal screw-top lids. (Jane Dill)



NS-N-787

2 CM



NS-EE-35

Figure 10.11: Apothecary Jars with Flat Lids. . . Similar in structure and function to the apothecary jars, these ceramic jars have distinctive flat rather than domed lids. They were made in the odd 3/4-ounce size and the considerably larger 6-ounce size and tended to be taller and narrower in shape. (Jane Dill)

The N-5 stoneware apothecary jars and lids were mass-produced ceramics made in a mold. The mode of production involved pouring or pressing a fine white stoneware paste into a two-piece mold. Given the extremely limited variation in actual dimensions for pots and lids of the same size (1 oz., 2 oz., etc.), molds certainly must have been utilized, and in light of the jars' heavy bases, a thickened clay paste was most likely pressed by hand into the mold. As the paste dried, the vessels shrunk away from the sides of the molds and were easily removed and left to dry further to leather hardness. Next, they were dipped into a thin slip solution and burnished with a special stone tool to remove the mold seam and any other imperfections. During the burnishing, the jars and lids were turned slowly on a wheel, indicated by the presence of concentric circles on the interior surface of most of pots. After smoothing, the jars and lids were once more dipped into the slip (or possibly a thin glaze solution) before being fired. A high kiln temperature was required to vitrify the clay and produce the glassy sheen over the entire surface. This process, repeated over and over again in the factory, allowed hundreds of jars and lids to be manufactured relatively efficiently and quickly in a variety of uniform sizes.

While these apothecary jars and lids may have been made as early as the eighteenth century, after 1830 they were known to be produced in great numbers in English pottery factories. No transfer-printed lids date from the eighteenth century, although the process was well established by the middle of that century (see below). However, early pot lids and, hence, the jars themselves date from 1830-1840, with the greatest number being produced from 1840 to 1880 (Clarke 1970; and Sonny Jackson, personal communication). By far the greatest number of N-5 apothecary jars that can be traced to a particular manufacturer were the ones carrying the impression "MAW" on the bottom of the containers. This mark signifies the English factories of S. Maw, Sons of London, a nineteenth-century factory well known for producing and supplying this type of ceramic ware. During the 1850s, S. Maw, Sons mass-produced a wide selection of these jars as well as other ceramic items used in the pharmaceutical trade, such as the Alexandra nursing bottle caps (see below). In the N-5 collection, there are impressed marks on the jars which read MAW 1/4, MAW 1/2,

MAW 1, MAW 2, and MAW 3, with the numerals just under the name. These marks, of course, refer to the volume in ounces of the jars. Two other N-5 apothecary jars and one jar fragment, differing slightly in shape from the Maw jars, had the brand name of "J. B. Thorn, Chemist, London" with the name "John A. Tarrant, New York, Sole Agent for the United States" printed in bold black letters on the base, while another 2-oz. jar had the cosmetic manufacturer "X. Bazin of Philadelphia", printed on its base within a central black circle (see Figure 10.12). In these two cases, J. B. Thorn and X. Bazin were not pottery manufacturers but proprietary drug producers who had ordered these pots with their brand name attached. However, several other jars in the sample had untraceable marks, "I" and the combination of letters "L C" or "222", impressed on the base, while 18 had no distinguishing marks at all. Extrapolating from the identifiable N-5 jars and lids, it is assumed that these lids and jars were all imported from England during the second half of the 1800s.

What the Jars Contained

From examining the N-5 transfer-printed and painted lids, it is known what sorts of products were being produced and sold in these jars, who manufactured them, and possibly what firms had sole distribution rights to the packaged goods. From the pot lids it is also possible to learn the place where the product was made, and additional archival research usually reveals the years in which the item was produced and the time period during which the manufacturer was in business. This information, of course, helps establish a system for dating pot lids, much as old and rare bottles are dated and used in fixing approximate chronologies for historical archaeological sites (see Chapters 7 and 8). It is conceivable then, that transfer-printed pot lids will some day contribute to our understanding of time sequences and occupation periods at historic sites.

Comparable types of information regarding the vast range of "patent" or proprietary medicines, pharmaceutical preparations, and cosmetics contained in the plain apothecary jars capped with unprinted lids is inferential at best. Nevertheless, certain data are available. These jars often had paper labels describing the contents wrapped around the sides or a paper seal on the lid, both of which were fixed to the jar with a melted



Figure 10.13: Transfer-Printed Toothpaste Pot Lids. . .Using the unique transfer printing process developed at English potteries in the 1750s, ceramic apothecary jar lids were regularly embellished with attractive designs, making them sought after by a growing number of collectors today. A survey of printed lids found at N-5 indicates the wide variety of commodities available in San Francisco, cherry toothpaste apparently being a favorite. The lids are also useful chronological indicators. (Ed Torres)



Figure 10.12: Leading Proprietary Drug Manufacturers' Labels. . .J. B. Thorn, the London chemist, and X. Bazin, the Philadelphia perfumer, added their names to the bases of the apothecary jars containing their products in bold black transfer-printed letters, an uncommon practice in the industry. Pharmaceutical and cosmetic manufacturers more frequently used cheaper paper labels wrapped around the jar or more costly printed pot lids to identify the products and their manufacturers. The makers of the ceramic jars themselves, however, characteristically employed impressed marks. (Ed Torres)

wax adhesive. Naturally, the paper labels quickly disintegrated in the ground, leaving us to guess the jar's contents. In addition, it is reasonable to assume that the majority of these jars and lids were purposely left plain as containers for individual prescriptive medicines, just as pharmacists today dispense pills in plain plastic vials and ointments in plain soft metal tubes or unlabeled glass jars which they stock expressly for this purpose. In fact, nineteenth-century San Francisco pharmacists are known to have kept and utilized an assortment of such containers for dispensing their remedies (see Chapter 7).

Medicinal preparations, cosmetics, toiletries, and highly touted nostrums known to have been contained in these ceramic jars included vaseline; soothing unguents for sunburn, rash, and assorted skin irritations; wintergreen ointments and other salves and balms; various hair pomades such purified bear's grease, intended to strengthen and increase the abundance of hair; skin care preparations including various types of cold cream; shaving creams; and assorted brands of toothpaste. The vast quantity of these ceramic apothecary jars and lids, like the wide range of drug bottles, reflects an era in the growth of the American pharmacies when low-cost English ceramic jars were as common as they were cheap.

Decorated pot lids, however, hold greater interest not only for the specialized collector but for anyone interested in gaining a closer look into the type of products and goods used by nineteenth-century residents of San Francisco. Eight beautifully printed lids came from the N-5 dump site, while five additional ones were recovered from monitoring along the Channel Outfalls alignments. Together, these 13 pot lids fitting 2-oz. jars represent 6 different nineteenth-century proprietary drug and cosmetic manufacturing firms (see Tables 10.13 and 10.14 in Appendix D). These companies were located in San Francisco as well as in far off Philadelphia, Montreal, London, and Paris. While pharmaceutical and cosmetic goods were obviously imported into San Francisco, the archaeological sample of printed pot lids also provides evidence for the existence of an indigenous drug industry in the city during the 1870s and 1880s.

The printed pot lids include six from John Gosnell & Co.'s London-manufactured cherry toothpaste; one of Lyman's cherry toothpaste from Montreal; two printed lids of Poudre Dentrifice du Docteur Pierre of Paris;

one lid of Xavier Bazin's shaving cream; one of H. P. Wakelee's popular Philicome hair preparation from San Francisco; and two cold cream lids from an unknown manufacturer (see Figures 10.13, 10.14 and 10.15). It would seem that cherry toothpaste was widely used by many San Franciscans a hundred years ago, and this may be partially due to the strikingly attractive painted and gilded pot lid gracing the ceramic container in which this useful product came.

The art and technique of transfer printing on ceramic originated at certain English potteries in the 1750s (Jewitt 1883:135; Clarke 1970:22; Mankowitz and Haggar 1957:204; and Dale 1977: 10-11). According to Jewitt, the invention of printing on china is attributed to pottery factories in Worcester, and a John Sadler, among several other eighteenth-century Staffordshire potters and porcelain engravers, was credited with this landmark development (Jewitt 1883: Ibid.). In any case, there are several variations of the process. Some pot lids have been transfer-printed with only a single color of black, blue, or red, while others are more elaborately decorated with polychrome colored paintings transferred onto their surface. Essentially, the process involves the application of decoration--a design, picture, or simply letters--from engraved copper plates onto pottery or porcelain by means of gelatine bats or paper tissue. By the early 1800s, pot lids were first being decorated by the underglazing transfer-printing method using paper tissue to convey the ink to the ceramic surface. In this technique, a thin paper tissue was placed on top of the unglazed bisque-fired pot lid. The porous lid absorbed the oil from the printing ink after the engraved and inked copper plate was pressed onto the tissue-covered lid. Immersion in water then removed the tissue but left the printed pattern on the lid. After exposure to low heat burned off the excess oil, the lids were then dipped into a clear glaze and fired in a glost kiln at 9,000 degrees centigrade (see Dale 1977: 10-11). According to Mankowitz and Hagger, black, blue, and red ink colors were supplemented with pink, brown, orange, and green. Gold printing on lids was invented in 1810, and a multicolor or polychrome-transfer printing technique was perfected in the 1840s in Staffordshire by Felix Pratt.

F. and R. Pratt of Fenton specialized in polychrome printing on ceramics, copying primarily contemporary English narrative paintings,

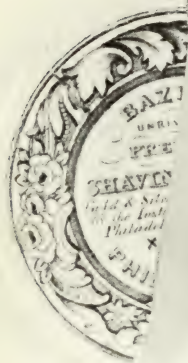


Figure 10.14: Pot Lids for Cold Cream and Saponaceous Shaving Cream. . . The intricately designed black and white transfer-printed cold cream pot lid (right) was widely used by many different proprietary cosmetic manufacturers because it did not specify the name of the cosmetic maker. The other fragmented lid, which is printed in red ink, indicates a favorite shaving cream of the day produced by Xavier Bazin, the world famous toiletry manufacturer from Philadelphia (Ed Torres)



Figure 10.15: Sumptuously Designed Wakelee's Philicome Pot Lid. . . Among contemporary collectors, a Wakelee's Philicome pot lid is a rare find indeed. Predominately blue with a gilded rim and an elaborate heraldic emblem, this lid unmistakably identifies philicome-- a scented hair preparation popular a century ago. More importantly, however, the lid informs us that H. P. Wakelee of San Francisco produced this cosmetic. During the 1860s and 1870s, Wakelee was a successful local manufacturer of a line of cosmetic preparations including Genuine Bear's Grease, Ursina, Cold Cream, and Odonto Toothpaste, and each of Wakelee's preparations had its own distinctively designed pot lid. (Ed Torres)

historical battle scenes, and animal subjects onto pot lids and other tablewares. The finest examples of this printed ceramic ware are generally called Pratt Ware honoring Felix Pratt's pioneering artistic endeavors. Other English pottery factories soon learned to employ Pratt's process for decorating pot lids, and these beautifully rendered pot lids became very popular during the last century. They are avidly sought by collectors today (see Clarke 1970).

Although the decoratively printed pot lids from N-5 and other alignments are not examples of the finer Pratt Ware, they were produced in much the same manner and possess their own beauty albeit with a commercial intent. The printed pot lids in the San Francisco sample were ordered especially by drug and cosmetic manufacturing companies for the packaging and sale of their product. They were more costly to produce than the plain jars and lids with paper labels, but the additional cost was undoubtedly matched by the proprietary drug manufacturer's increased sales, for the uniquely designed pot lids surely contributed to the commercial success of the product and the profits of the company. The lids also represent early attempts at creating individualized brand names and familiar products that would be easily recognized in advertising circulars and newspaper advertisements. Ultimately, then, the printed pot lids not only revealed the contents and the name of the manufacturer, but by their attractiveness they invariably contributed to the product's competitive success as a consumer item.

The most numerous transfer-printed pot lids in the N-5 artifact collection are those for cherry toothpaste. According to Swanson's toothpaste pot lid collectors' publication, literally hundreds of toothpaste brands were manufactured in the mid- and late-nineteenth century. Besides the extremely popular cherry-flavored toothpastes made by John Gosnell and Co. in London and Lyman in Montreal, there were also Docteur Pierre's French dentifrice and the local San Francisco products of H. P. Wakelee who made Odonto and Burdell's Oriental Tooth Powder. Examining the toothpaste pot lids, we learn that there was even a brand containing charcoal (Swanson 1978:17).

Gosnell's cherry toothpaste seems to have been heavily favored in San Francisco in the late 1800s--the total sample has six of these lids (see

Figure 10.13 and Tables 10.13 and 10.19 in Appendix D). Four are polychrome, and two are simply transfer-printed in black ink. All have a profile of a young Queen Victoria in the center, the words, "Cherry Tooth Paste, Patronized by the Queen", printed in a circle around the circumference of the lid, and "For Beautifying and Preserving the Teeth and Gums, Prepared by John Gosnell & Co. London" printed in smaller letters around an inner circle close to the queen's portrait. The multicolored pot lids are gilded on the outside edge of the design and have a predominately blue or green background with a yellow-gold image of the queen; letters are in black. One of the simple monochrome black lids has the words "Extra" and "Moist" printed on either side of the queen's head. The slight variation in the execution of the young queen's profile on the lids produced between 1837 and 1901 suggests that the engraving plates were continuously changing in slight detail. There is a good chance that the black and white Gosnell's Cherry Tooth Paste pot lids are earlier than the polychrome lids, given the fact that color transfer printing on ceramic ware did not begin until 1846-1848. Clarke estimates that the black-printed lids date from between 1837-1850, while the colored lids definitely date after 1850 (1970:285). We also know that all the Gosnell Cherry toothpaste pot lids in our collection pre-date 1890 since that is the year the manufacturer placed the designation "Ltd." after the company name, and none in the sample have "Ltd." printed on them. This, of course, accords with the 1880-1885 dates for the N-5 dump site. While it seems likely that the black-printed Gosnell pot lids predate the polychrome ones, it is also very possible that two different grades or qualities of toothpaste are indicated and that the polychrome lid capped a more expensive variety of dentifrice. Examination of Harrod's 1895 **Shopping Guide**, unfortunately, does not help unravel the mystery because it lists only one size and type of Gosnell's Cherry Tooth Paste selling at one pound/one shilling per pot (Aldburgham 1972:1110).

Lyman's cherry toothpaste came in a container that had a pot lid printed in a monochrome dark blue color with a superb botanical likeness of a cherry surrounded by its leaves placed in the center (see Figure 10.13). Lyman's brand, which was made in Montreal, claimed on the lid that it not only "effectually cleanses the teeth and gums" but also "imparts a

delightful fragrance to the breath". Docteur Pierre's Poudre Dentifrice, on the other hand, came in a container with a much less elaborately designed black-and-white pot lid than either Lyman's or Gosnell's. Nonetheless, it did boast a distinctive heraldic coat of arms insignia prominently placed at the top of the design and attractive lettering describing the contents (see Figure 10.13). **Harrod's Shopping Guide** also lists this brand of toothpaste which was identically priced with Gosnell's cherry flavored product at one pound/one shilling in 1895 (Adburgham 1972:1109).

Among the other types of transfer-printed pot lids, there are two similar fragments of cold cream lids printed only in black ink. They are intricately lettered and designed with fruit and heraldic scrolls forming a stylized frame around the distinctively shaped letters reading "Cold Cream" (see Figure 10.14). While the exact manufacturer of this product is unknown, an examination of private pot lid collections indicates that proprietary drug and cosmetic producers made dozens of these different cold creams which all claimed to be able to beautify, improve, and cleanse the skin. Popular cold cream preparations were often scented with roses or other flowers, and a particular favorite contained the miraculous ingredient, cucumbers! No doubt, the widespread and informal manufacture of varieties of cold creams encouraged jar and pot lid factories simply to create this generic lid design which could be used by many different cosmetic compounders for their special cold cream formula. It is interesting to note that the heavy glass jars used today to hold cold cream closely resemble in shape their nineteenth-century ceramic precursors.

The N-5 collection also contains a fragment of a slightly larger lid indicating it was part of a premium shaving cream product by X. Bazin of Philadelphia (see Figure 10.14). This lid is transfer printed in a monochrome red, and like the cold cream pot lids, it offers an elaborate floral design encircling the name of the maker and the product. These floral design motifs probably appeared on pot lids associated with fragrantly scented cosmetic products.

Xavier Bazin started a perfumery and cosmetic business in Philadelphia toward the end of the 1850s. Within a very short period of time, he apparently attained great success in producing high quality toiletry articles, among them a much-in-demand saponaceous or soapy shaving

cream, which won a prize medal at the 1851 World's Fair in London. His two sons, Felix and Charles, were included in the family business in the 1870s, and soon afterwards someone named Sargent joined them as an additional partner. The company's name, as listed on the pot lids, changed to Bazin and Sargent with the formation of this partnership, a name which it retained until 1887 when the entire company was suddenly liquidated (Barbara Jackson, personal communication).

Finally, perhaps the most interesting pot lid in the San Francisco sample and, according to collectors, one of the more rare lids is the H. P. Wakelee Druggist Philicome pot lid (see Figure 10.15). H. P. Wakelee had arrived in California in 1850, and by the 1860s and '70s he had developed a thriving proprietary drug and cosmetic manufacturing business for producing a variety of widely used everyday products (see Chapter 7). All of his products appear to have been popular with San Franciscans throughout the nineteenth century. Among the preparations Wakelee developed, produced, and attractively packaged in ceramic apothecary jars with strikingly designed polychrome transfer-printed labels were Cold Cream, Odonto toothpaste, Burdell's Oriental Tooth Paste, Genuine Bear's Grease, Ursina (a refined, scented bear's grease), and Philicome. Like the Genuine Bear's Grease and Ursina, Philicome was a specially concocted hair restorative and grooming aid. Allegedly, however, it also improved hair growth and prevented baldness by stimulating the hair follicles. The polychrome, transfer-printed pot lid itself carries the name, "H. P. Wakelee Druggist San Francisco" in bold, dark blue letters in a circular band outlined in gilding along the outer edge of the lid. On a lighter blue background is a centrally placed Victorian heraldic coat-of-arms depicting a lion and unicorn, and written underneath in large black letters is the word, "Philicome". A jar of Wakelee's strikingly designed nineteenth-century hair care product was visually unmistakable, whether or not it fulfilled its claims.

These colorful and distinctive transfer-printed pot lids recall a host of everyday products of the last century, many of which are no longer made or used but which served as the basis for later developments in the American drug and cosmetic manufacturing industry. Many of the products contained in the jars capped by these lids--toothpaste, shaving cream, cold

cream, hair preparations, and so forth--were imported from England, France, Canada, and the eastern parts of the United States. However, a great many were locally produced propriety medicines, cosmetics, and toiletry items that were packaged and used in San Francisco--for example, the line of items manufactured by H. P. Wakelee on Montgomery Street. Many of these common household necessities continued to be packaged in the convenient ceramic apothecary jars with printed pot lids until World War I when they began to be replaced with structurally similar, thick opaque glass jars with metal screwtop lids.

A CHANGE IN INFANT CARE PRACTICES: CERAMIC NURSING BOTTLE CAPS

In many ways, the dozens of curious infant nursing bottle caps found cached in the N-5 dump site (see Figure 10.16) are closely related to the apothecary jars and pot lids. They all consist of the same ceramic material--a fine white porcelaneous stoneware with a clear vitrified glossy exterior--and no doubt they were made in essentially the same manner as the apothecary jars and lids. All of the ceramic caps are approximately 4 cm. in diameter at the domed top, tapering gently to 3.5 cm. in diameter at the flanged base. They stand nearly 2 cm. in height at the protruding central opening which is a scant 0.5 cm. in diameter. This central hole allowed for the insertion of either a soft rubber nipple or a short piece of narrow rubber tubing at the end of which was attached a rubber nipple on a separate fitting.

A minimum number of 92 feeding bottle caps were unearthed in the N-5 sample. Most of them were intact, and some still retained a thin cork liner on the inside of the cap that facilitated attachment to a glass nursing bottle (see Figure 10.17). Fortunately, the top surface of most of those caps were transfer printed, like the pot lids, in black letters which identify the exact product, cap size, manufacturer, and place of manufacture. Most were labeled, "The Alexandra Feeding Bottle", produced by "S. Maw, Son & Thompson, Aldersgate, London". This is the same firm that made the plain ceramic apothecary jars found in equal abundance in the dump site.

Perhaps both items were cached or dumped there when a pharmacy went out of business sometime in the late 1880s, or when new models replaced the older nursing and pharmacy bottles. Obviously, S. Maw and Son and their partner Thompson had a busy factory that produced countless numbers of these pharmaceutical ceramics during the 1800s. Some of the caps also bear the information "No. 11 & 12" or "No. 10, 11 & 12", which no doubt refers to the size of bottles the caps would fit. Several have a thin, dark brown line neatly encircling the exterior sidewall of the cap, and a few are colored a light yellowish tan. The meaning, if any, of these variations is unknown.



Figure 10.16: Ceramic Nursing Bottle Caps Indicate Innovations in Infant Care Practices. A cache of ceramic infant feeding bottle caps at the N-5 dumpsite exposed a little-known aspect of nineteenth century child care practices. Apparently, some mothers had already begun feeding their babies artificially using glass bottle nursers. All of the caps, which measure $1\frac{1}{2}$ inches in diameter, fitted on the opening of glass feeding bottles and had a $\frac{1}{4}$ -inch central hole to accept a protruding rubber tube and nipple assembly. (Ed Torres)

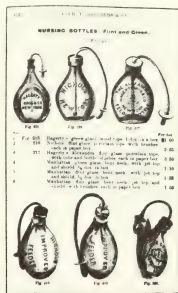


Figure 10.17: Nursing Bottles and Related Paraphernalia c. 1880s. By the mid-1880s, a number of manufacturers began producing not only feeding bottles, but nipple shields and breast pumps. Most of the ceramic bottle caps found at the N-5 dumpsite were for use on the popular Alexandra Feeding Bottle pictured in the upper lefthand corner of this page from Hagerty Brothers & Co. catalog. From these prototypical glass feeders are derived our modern plastic baby bottles. (Freeman 1964)



The discovery of these ceramic nursing bottle caps reveals an entirely different slice of nineteenth-century San Francisco life than does any of the other artifacts recovered from the Wastewater Management Program archaeological monitoring activities. What it shows is that apparently over a hundred years ago, it was not uncommon for women to feed their infants with bottles, although since no glass nursing bottles were unearthed at N-5 or elsewhere along the sewer alignment, the presence of the caps is the only conclusive artifactual proof that these infant care practices did indeed exist, perhaps on a widespread basis.

The development and social history of artificial infant bottle feeding practices is illuminating. Across countless cultures and for thousands of years of human evolution, infants were naturally breast fed or given over to wet nurses for that purpose. According to historical bottle analysis, it was not until the end of the eighteenth century that crude feeding bottles began to make their appearance in England and America (Freeman 1964:339). There are several plausible explanations for this innovative change from breast feeding to artificial bottle nursing of babies. Victorian attitudes concerning modesty and decency regarding biological processes, coupled with so-called advances in medical thought and technology during the nineteenth century, may underlie the acceptance and use of artificial infant feeders on a large scale. While an examination of the forces prompting this significant development is beyond our present scope, it is here sufficient to point out that beginning in the late 1700s and early 1800s, new baby-feeding devices began to make a progressively steady appearance in the medical supply market and child care practices.

Early nursing bottles were made either of pottery or pewter, but they were quickly supplanted by the popular and varied flint glass models. Initially, glass nursing bottles had a small opening on one end for the baby to suck on and a hole at the opposite end, plugged with a cork, into which the milk was poured (Freeman 1964: Ibid.). Varieties produced after the 1850s were fitted with different types of rubber nipples or tubes from which infants would suck out the milk. It was on this kind of glass infant feeding bottle, the Alexandra pictured in Figure 10.17, that the ceramic bottle caps in the N-5 collection fitted.

Although babies were sometimes given cow or goat milk in these nursing bottles, mothers often were reluctant to do so because of common folk beliefs warning against animal milk and the known fact that children frequently sickened and died from unsterilized milk and milk containers. Instead, then, European and American women frequently employed breast pumps to help express their own milk, and then fed this to the infants in the feeding bottles. Examples of these pumps are also illustrated in Figure 10.17, along with other nursing bottle paraphernalia.

Various-shaped nursing bottles, graduated glass flasks, rubber nipples and tubing, porcelain feeding bottle caps lined with cork, breast pumps, nipple shields, nursing bottle cleaning brushes, and other bottle fittings all became part of a budding infant care industry that began in earnest during the 1870s and 1880s. Examination of a nineteenth-century manufacturer's sales catalog shows, for example, that Hagerty's Graduated Nursing Flask was introduced into the market in 1887, while the Peerless Nurser with a double safety valve nipple, a popular model at that time, had received its trademark and patent as early as 1878. The Alexandra Feeding Bottle was also well known, and there exists an even earlier product made in England but distributed widely in the United States throughout the 1870s. In the 1880s, Hagerty Brothers & Co., located at 8 and 10 Platt Street in New York, was selling the Alexandra flint glass nursing bottle with porcelain caps, rubber tubing, and cleaning brush individually boxed at \$3.50 a dozen. The Alexandra and the Peerless Nurser were the most expensive ones sold by Hagerty Brothers & Co. at that time. In the catalog illustration, the nursing bottle ceramic caps are seen mounted on the bottle necks with the protruding rubber tube and nipples (see Figure 10.17).

While it is odd that no recognizable glass nursing bottles were recovered from the N-5 site, the presence of nearly 100 ceramic nursing bottle caps offers ample evidence that artificial bottle feeding was not an uncommon practice among new mothers in nineteenth-century San Francisco.

GOLD MADE THE CITY: CERAMIC REFINING CRUCIBLES

San Francisco's early *raison d'être* is clearly linked to the Gold Rush of 1849. Without the mad influx of men, money, material goods, and dreams focused on the quest for riches in the California gold fields, the city's development would have been radically different. San Francisco served as the urban supply center for gold seekers, and it remained the financial center of the West Coast long after the gold ran out. Gold ore was brought to San Francisco where it was smelted, refined, assayed, minted, traded, and exported. Like other entrepreneurs of his day, the proprietary druggist, H. P. Wakelee, who figures several times in this volume, did not miss an opportunity to capitalize on the gold rush. In the 1860s he managed operations at the Golden City Chemical Works which produced the corrosive acids necessary for the purification of precious metals. His firm supplied the United States Mint and the San Francisco Gold and Silver Refinery, both of which were prominent establishments in the city (see Chapter 7). The 30 ceramic crucibles used in this refining process which were recovered from the N-5 dump and the Channel sites along the Wastewater Management sewer alignments clearly reflect and attest to San Francisco's pre-eminence in the gold trade of the last century.

Three recognizable sizes of crucibles are found in the collection (see Figure 10.18). The small size has a height of 1-1/2 inches, a top diameter of 2 inches, and a base diameter of 1 inch. The medium size has a height of 3-3/4 inches, a 3-inch mouth diameter, and a 1-3/4-inch base diameter. Three of the medium size specimens have "20 grams" marked on their bases. The large size crucible stands 5 inches high and has a 3-inch mouth diameter tapering to a 1-3/8-inch base diameter.

The two small size crucibles were made by the same manufacturing firm located in Paris and San Francisco. Although the wear on these crucibles makes it difficult to read the complete impressed markings, it appears that they were made by Fruelle Sr of Paris and I. Taylor C^{ie} of San Francisco (see Table 10.15 in Appendix D). Among the five medium crucibles holding 20 grams, two were clearly manufactured by the Battersea Works in England, while the other three are unidentifiable (see Table 10.16 in Appendix D). (It is important to note that the medium size flasks were

found only in the Channel sites, not at N-5.) Of the 21 large crucibles, 13 were produced by the same London Battersea Works as the 2 clearly marked medium size vessels, 7 were made by Justinien Caire of San Francisco, and one was manufactured by a pottery factory named Stonegate whose location is unknown (see Tables 10.15 and 10.16 in Appendix D). There are also nine large crucible fragments lacking any identifiable impressed or printed makers' marks. Only the widely used Battersea medium and large crucibles are found in both the N-5 and Channel sites, though the two Battersea crucibles from C-1 have the untraceable placename of Morgan, not London, impressed on them. In general, the identifying marks on the crucibles are impressed on the exterior walls and bases of the vessels, but many of these marks must have disappeared, perhaps even shortly after manufacture, given the routine exposure to high temperatures, the use of caustic agents, and the excessive abrasion to which the crucibles were subjected.

In order to sustain exposure to the extreme temperatures and corrosive conditions required to refine gold and silver, all of these thick-walled, heavy-based crucibles were made from a heavy stoneware clay body. In contrast to the medium and large crucibles, the small-sized vessels are made from a finer whitish stoneware paste. While the clay fabric of the English Battersea and the American Caire crucibles does not differ greatly, they do exhibit subtle differences in shape. The large Caire crucibles have a less pronounced pouring lip but a greater point of tangency or bulge than do the Battersea type crucibles. The large English crucibles have wider rims, straighter sides, and much more pronounced pouring spouts than their American counterparts. The spouts have been pressed out from the interior. Structurally, none of the small or medium crucibles in the entire sample have pouring spouts, and thus the containers could be picked up with tongs at any point along their circumferences and their purified liquid metals poured out.

Many of the medium and large crucibles in the sample exhibit crudely painted large numerals on their sides. The exteriors of five large Battersea Works crucibles from the N-5 dump have the numbers 4, 5, 7, 8, and 38 applied. From the Channel sites, there are three medium size crucibles with 3, 43, and 74 painted on them, along with two large size vessels

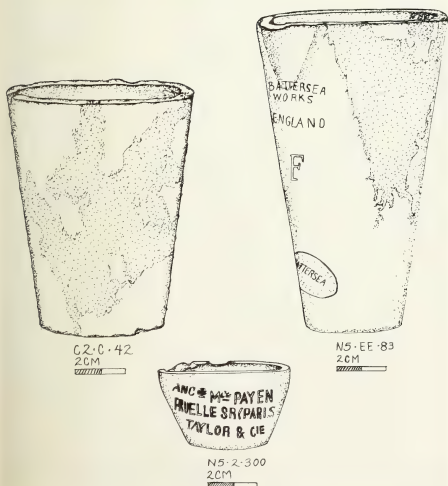


Figure 10.18: Industrial Crucibles of Bygone Economic Importance. . . Three sizes of industrial crucibles were recovered during the archaeological monitoring program at the N-5 dump and along the sewer alignments. Some of the crucibles probably come from the nearby Selby Smelter and Lead Works, found in 1865 and located then at what was the intersection of Beach and Jefferson streets. These crucibles, which are made of highly durable ceramic material capable of withstanding extremely high temperatures and corrosive chemicals, serve as reminders of San Francisco's former preeminence as the West Coast center of gold processing, precious metal trading, and finance. (Jane Dill, Ed Torres)

painted with 5X and 7. All these numbers have been applied with such apparent vigor and haste as to suggest some sort of prefatory purpose not related to the ceramic factory where they were made. Instead, it appears as if the numerals were painted with the same dark brown oily substance clinging to the interior sidewalls of the vessels. Indeed, this pigment may have been the impurities the refining process was designed to remove, and the numbers themselves may refer to a system of batch identification devised by some assaying or refining company. If this is so, then the numbers were smeared over the sides of the crucibles in order to tag and record various samples of purified ore that may have been processed simultaneously in a large smelting furnace.

It is a tantalizing thought that the crucibles in the archaeological sample may have originally come from the famous Selby's Smelter and Lead Works. This historic smelter, which was established in 1865 by Thomas Selby for the processing of gold and silver ore, was once located near the N-5 site at the intersection of Beach and Jefferson streets (see Bancroft 1890: 65). The refinery operated in that part of the city for twenty years from 1865 to 1885, and according to the 1887 Sanborn Map, the smelter was abandoned by that date and the buildings were designated for removal (see **San Francisco Waterfront:** 648-649).

When a business industry closes down, many goods are simply discarded, and thus, it seems likely that the N-5 crucibles might well derive from Selby's operations, tossed out en masse as useless when the smelter became defunct. The established dates for the N-5 dump site and the demise of the nearby Selby's Smelter and Lead Works coincide, leaving little doubt as to the source of our crucibles.

The presence of the various sized and numbered crucibles in the artifact collection materially testifies to San Francisco's early importance as the West Coast center of gold processing, precious metal trading, and finance. The sheer volume of gold and silver ore that was refined in the city in the nineteenth century stimulated the rapid growth of the city's extensive chemical and metallurgical industry, of which crucibles such as those found at the N-5 and Channel sites were major technical components.

FOR THE CHILDREN: CARPET BALLS, MARBLES, AND OTHER MINIATURE CERAMIC TOYS

The vast bulk of the European style ceramics in the N-5 collection clearly reflects the utilitarian, pragmatic, and functional side of nineteenth-century life in San Francisco. So far we have discussed everyday tablewares, spittoons, apothecary jars, and crucibles--items centering for the most part on mundane and routine domestic or industrial activities. However, the N-5 collection also contains a substantial representation of ceramics dealing with fantasy, play, leisure, and the decorative aspects of people's lives, particularly for children in the city of a hundred years ago.

Found at N-5 were a minimum number of 28 ceramic toys and miniature chinaware dolls' accessories. The ceramic dolls and doll parts themselves are treated in the following chapter (see Chapter 11). In addition to 2 wooden dominoes, there are 4 marbles, 1 large carpet ball, and 21 tiny toy tea set parts which include miniature Chinaware teacups, teapots, pitchers, saucers, plates, and sugar bowls. In addition, there are three decorative porcelain statuettes--one depicts a cat with a mouse and two show little girls--which were probably intended for a household knickknack shelf.

Marbles are among the most common items regularly encountered in urban archaeological deposits in San Francisco. Excavation at the C-4 Dumpville site, for instance, recovered literally hundreds of unfinished, "factory-reject" marbles (see Chapter 3) of the type rapidly made from clay stoneware pressed into molds and then fired. Often handpainted, the nineteenth-century marbles were commonly glazed in a combination of green and red stripes. The average marble was consistently under 1 inch in diameter, usually measuring 1/2 to 3/4 inches wide, although larger "shooters" ran over 1 inch in diameter. Cheap, easy to produce, and fun to use, marbles were a ubiquitous part of the children's world then and continue to be so now, despite the vast expansion of the commercial toy industry.

One exceptionally gigantic marble called a carpet ball was also recovered from the N-5 dump. This specimen, conveniently broken in half, reveals its brown stoneware interior (N5-EE-77). Fortunately, the exterior

surface is also preserved to reveal complex blue and black bands attractively criss-crossing on a white glazed background (see Figure 10.19). Measuring nearly 1-3/4 inches in diameter, it is well over twice the size of the standard marble.

In England, carpet balls, also called "taws", are large marbles or small balls which were used in the Victorian indoor game of carpet bowls. One source mentions that carpet balls

were made in brown stoneware, agate ware, or earthenware covered with striped, ringed, flowery or starry designs. A set of bowls comprised one plain or self-coloured taw and six patterned balls. They were made in many places in Scotland and England. Edward, John, Thomas and W. Parr of Burslem specialized in the manufacture of marbles. Their factories were called "rock taw banks" (Mankowitz and Haggard 1957: 42).

Figure 10.20 shows a set of these carpet balls similar to the one in the San Francisco collection.

Whereas marbles and carpet balls were features of the play world of little boys, the 26 ceramic dolls and the 21 assorted pieces of the Chinaware toy tea set recovered from the N-5 dump were clearly the childhood toys of little girls a hundred years ago (see Figure 10.21). By the 1880s and 1890s, the commercial manufacturing of miniature ceramic tablewares for children's play was well established. In addition to a variety of dolls, dolls' clothing, wooden and metal doll house furniture, and kitchen utensils, an outlet such as Montgomery Ward's and Company advertised in 1895 several China toy tea sets and decorated China toy toilet sets made expressly for children (see Figure 10.22). The Chinaware toy tea set pieces depicted in Ward's **Catalogue** are virtually the same as the miniature ceramic tablewares in our sample.

The Chinaware toy tea sets that Wards was selling in the 1890's ranged in price from as little as 10 cents for a small set of plain, tiny pieces to 1.25 for one consisting of 24 larger pieces of miniature white porcelain tableware which included 6 plates, 6 cups, 6 saucers, 1 sugar bowl and cover, 1 teapot and cover, 1 creamer, and a slop bowl. According to the sales catalog this particular set "is large enough for a miss from 8 to 14 years of age" (Ward's **Catalogue** 1985: 231). Finally, the more affluent families who were able to afford the added expense could purchase the same set as described above but executed in "elegant patterns" for \$1.75.

The N-5 sample of miniature ceramic toys represents several different styles and designs. However, all the pieces are made from the same basic white stoneware clay body as the White Granite vitreous Hotel China out of which adult tablewares (described above) were regularly manufactured. While most of the miniature toys are simple plain white vessels, several are decorated with blue or green lines encircling the perimeter of the cup, saucer, or sugar bowl lid, and others are more elaborately handpainted in floral patterns with green, magenta, and gold enamel. In addition, these toys differ in size. Three comparatively large sugar bowls measure 1-1/2 inches high and 2-1/2 inches in maximum diameter; a large teapot is 1-3/4 inches in height and 2 inches in diameter; and three large size saucers are 2 inches in diameter. In contrast, the smaller size sugar bowl is 1 inch in height and 1-1/4 inches in width; the three small teapots range from 1-1/4 to 1-3/4 inches in height and 1-1/2 to 1-3/4 inches in width; the small painted creamer is only 1-3/8 inches high and 1 inch at its maximum width; and the two small saucers are both a mere 1 inch in diameter. The more numerous and apparently less expensive small toy tablewares represent nearly two-thirds of the entire miniature ceramic sample.

While these tiny tablewares were most likely child's toys, it is conceivable that the specimens might have been samples belonging to a pottery factory sales representative who carried miniature scale models of the tablewares his company manufactured from door to door. Miniatures were obviously easier to carry and display to potential customers. While this possibility cannot totally be ruled out, it is more likely, based on available evidence, that the miniature toys were avidly used by little girls in the city in the 1880s for their fantasy tea parties and dolls' games. Of course, little boys may have shared in the fun as well.

Most archaeological ceramic samples pulled from the N-5 dump site are utilitarian ware types which illuminate the mundane aspects of everyday life in Victorian-era San Francisco--an occurrence which is as true for the Chinese ceramics discussed in the previous chapter as it is for the European style ceramics under discussion here. Fortunately, the marbles, carpet ball, miniature toys, and dolls (which are examined fully in the following



(A) SCOTTISH carpet balls, white earthenware printed in colours. Early nineteenth century
Diameter $2\frac{1}{2}$ inches.

Figure 10.20: Four Painted Scottish Carpet Balls from the Early 1800s. . Made of white earthenware or brown stoneware, these large marbles were produced in many pottery factories in England and Scotland. Often hand-painted with stripes, rings, flowers, or star patterns, these carpet balls are virtually identical to the specimen recovered from N-5 (Figure 10.19). A set of these balls or "bowls", as they were called in England, included one plain or natural colored ball and six patterned balls. (Mankowitz & Hagger's *Encyclopedia of English Pottery*, Pl. 78a)

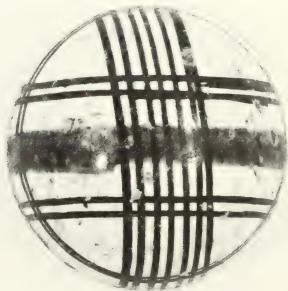


Figure 10.19: Clay Carpet Ball for Play. . Unlike the mostly utilitarian European style ceramics, a carpet ball, marbles, and other ceramic toys reflect the fantasy play world of San Francisco's children. In fact, handpainted clay marbles exhibiting distinctive floral and geometric designs are among the most common items encountered in the city's archaeological deposits. While the average marble measured under 1 inch in diameter, a single giant marble over 1-3/4 inches in diameter was also recovered during the archaeological monitoring. It is a carpet ball or taw, used as a "shooter" in the American game of marbles or in the English game of carpet bowls. (Ed Torres)

chapter) allow us a glimpse of other sides of nineteenth-century life in San Francisco, for they are the "small things forgotten" that reflect the rich if often overlooked world of child's play.

INSIGHTS INTO FORGOTTEN WAYS OF THE PAST

In this chapter we have not aimed to present a detailed archaeological analysis of the N-5 European style ceramics. Rather we have chosen to describe in detail certain components of the artifact collection that reflect little known or neglected aspects of nineteenth-century material culture in San Francisco. A meticulous and lengthy report on the dating of these ceramics through an analysis of the manufacturers' marks found on the vessels would have been pointless, since the date of the site had been accurately determined through documentary evidence. Furthermore, comparable collections of this type of artifact material have previously been presented in the archaeological literature, and one more similar discussion would add little of value to the record. Full descriptive data compiled on these ceramics during laboratory study and cataloging is, however, available in a series of tables gathered in Appendix D. Interested research specialists, museum trainees, and historical archaeologists doing comparative studies of European and Anglo American pottery recovered from nineteenth-century sites in North America are referred to these tables for further study.

In broadest terms, the European style ceramic ware recovered from the N-5 dump site reflects the continued American reliance on British pottery wares in the nineteenth century, despite the massive domestic reaction against imported ceramics and the enactment of restrictive tariffs designed to limit foreign competition. Historical documentation and comparative archaeological evidence readily attest to this sustained second-class status of the American pottery industry in the late nineteenth century. What seems particularly interesting about the N-5 collection, however, is the unusual artifact types that receive little mention in the literature but reveal important aspects of everyday life in San Francisco one hundred years ago. With this in mind, we have therefore focused attention on Rockingham Ware teapots, cuspidors, apothecary jars and lids, nursing bottle caps, crucibles, and children's toys. Each one of these albeit mundane ceramic artifacts holds some meaning about past ways of living and human behavior that would otherwise remain forgotten. By resurrecting these common everyday items we glimpse again their significance and meaning for people in times past.

CHAPTER 11

FROZEN CHARLOTTE AND CHINA LADIES: CERAMIC DOLLS AT N-5

He took her hand into his own.
Oh God! It was cold as stone.
He tore her mantle from her brow
On her face the cold stars shone.
Then quickly to the lighted hall
Her lifeless form he bore.
Fair Charlotte was a frozen corpse.
And her lips spake nevermore.

-- Nineteenth-century ballad

Porcelain doll parts date to the second quarter of the nineteenth century, when fine European porcelain factories such as Meissen and Biedermeier, with long histories as makers of elegant figurines and china, began producing finely sculptured, expensive dolls heads as toys for the children of comfortable bourgeois families (see Figure 11.01). Concurrently, in places like Staffordshire, England, factories turned to manufacturing often crudely modeled and brightly colored ornamental figurines and trifles for less affluent admirers to display in their homes, if not yet for their children to play with. Soon a wide range of dolls wholly or partly of fired ceramic material were being produced throughout Europe, especially in Germany and France (Hillier 1968:149).

At the N-5 dump site, which dates to the 1880s, 26 ceramic doll parts were sorted from among the more than 4,000 artifacts retrieved. Seventeen of these were glazed white porcelain; the remaining 9 were bisque (fired but unglazed stoneware).

While ceramic dolls were widely available in varying price ranges by the third quarter of the nineteenth century and while the N-5 doll parts

reflect this diversity, this does not mean that other types of dolls were not even more common and probably also included in the San Francisco landfill deposition. Cloth, papier-mâché, and wood doll parts, however, would have rapidly disintegrated in the wet soil of N-5, and wax parts would have been broken or deformed beyond recognition to the archaeological monitor. The N-5 sample, then, is not fully representative of nineteenth-century doll types as a whole, which have been the subject of extensive literature (see, for example, Young 1977; Eaton 1975; Fawcett 1964; Fox 1972; von Boehn 1972; Miller 1979; St George 1948; Coleman et al. 1978; Coleman 1968; Noble 1971).

Because the clothing and hairstyles of ceramic dolls reflect the fashions of the era when they were made, these attributes are used by collectors to establish the dolls' times and places of manufacture (see Figure 11.02). An analysis of the N-5 doll parts, considered in light of the carefully documented depositional history of the site (Chapter 5), establishes that a number of them are considerably older than the landfill in which they were found. This finding is supported by the results of a careful comparison, presented below, between the doll parts and the dateable soda water bottles found at N-5. The archaeological evidence from N-5, therefore, seems to suggest that the dolls had an extended life as family heirlooms or childhood mementos and that historical archaeologists must use caution in treating dolls as time markers.



Figure 11.01: Girls' Playthings c. 1860
 . . included jointed dolls and miniature ceramic tea sets for make-believe parties. Both artifact types were found at N-5. (California Historical Society)



Figure 11.03: Pincushion and Peddler Dolls. . . were common types of jointed ceramic dolls (numbers 26 and 25). The famous Jumeau *Bebe* (number 28) was manufactured in bisque. Bangs and other hairstyle touches date many of these dolls to the 1890s or the turn of the century. (Fawcett 1964)

IDENTIFYING AND DATING CERAMIC DOLLS

By the end of the nineteenth century, ceramic dolls had been produced by the millions, perhaps tens of millions. In 1844 alone, for example, the German firm of Voit and Fleischmann reported turning out 360,000 dolls' heads. Similarly, the Jumeau Company of France recorded manufacturing 85,000 of the famous *bébé* dolls in 1881, 115,000 in 1883, and 220,000 the next year. Stretching credulity, *Harper's Bazaar* reported in 1884 that an unnamed German factory in operation for 130 years had produced a billion "China" dolls. This astounding figure was based on the factory's report of 30 ovens in continuous operation, each loaded with 5,000 dolls (all figures from Coleman 1968:507). Allowing for exaggeration, it is clear that busy factories produced an immense number of ceramic dolls during the second half of the nineteenth century. Until World War I, the largest production center was Germany, especially Saxony and Thuringia (Young 1977:104; von Boehn 1972: 164-165). Much of the doll manufacturing was done as piecework carried out in households, and individuals often specialized in making hands and arms, shaping heads, or painting faces (Fawcett 1964: 37-39).

Ceramic dolls have two main forms. Figurines are single piece representations, frequently stamped from a mold, with unmoveable limbs and features. Jointed dolls have composite parts. Head, legs, and arms are made of ceramic material; the body may be cloth, leather, or ceramic (see Figure 11.03). Clothing on jointed dolls is usually made of cloth and may be changed. On figurines, the clothes may be represented ceramically as part of the figure, or, as in the case of "Frozen Charlottes", may be absent altogether.

The cheapest and most widely sold ceramic doll was the one-piece unjointed type known variously as "penny" doll, "pillar" doll (for its stationary arms and legs), or--in the United States--"Frozen Charlotte" ("Frozen Charlie" for male dolls). Usually 4 to 6 inches in height but ranging from 3/4-inch up to 18 inches (see Figures 11.04 and 11.05), the small nude figurines were cast in molds and simply adorned with a ribbon or wrap of cloth (Coleman 1968:241; Desmonde 1972:71). Hairstyles varied, and some heads had molded ruffled bonnets. Manufactured in the tens of millions

and sold for pennies, Frozen Charlottes and Charlies were in form the essence of mid-nineteenth century taste--comfortably plump (Fox and Landshoft 1972:182). The name itself derived from a popular twenty-one stanza ballad about the vain and beautiful young Charlotte who rode in a sleigh one icy night wearing no blanket in order to show off her beautiful silk dress. The concluding stanzas of the song recount Charlotte's sad and frozen fate. (Desmonde 1972:71)

Jointed dolls generally depicted young women. Their facial features, carefully hand-painted before the glaze firing, followed a number of highly patterned conventions. Eyes were usually blue, and hair was black. Lips were orange-red, with a line above the eyelashes in the same color. More expensive models exhibited more detailed painting, such as fine brush strokes at the hair line. On jointed dolls where the china head, arms, and legs were joined to a stuffed body of cloth or kid or to a bisque torso, the ceramic parts were produced in Germany or France, then sent to doll manufacturers, including many in the United States, who assembled, dressed, and marketed the dolls. The head, legs, and arms of the jointed or composite dolls were variously attached to the body by stitching, wiring, and elastic bands (see Figure 11.03).

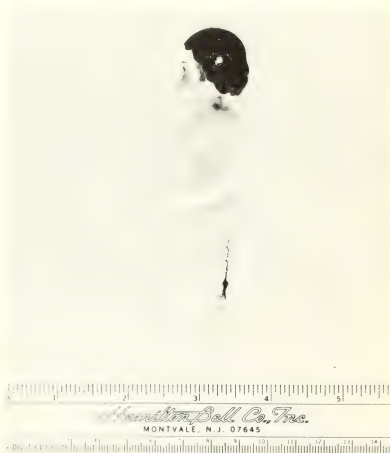
Not surprisingly, the model young ladies were dressed according to the styles of the times, and a well-preserved doll usually may be accurately dated on the basis of her clothing, jewelry, fan, and other accessories. Even if only the ceramic portions of the dolls have survived, as at N-5, there still exist a number of fashion attributes which help establish the doll's date of manufacture. Useful in analyzing the dolls recovered from N-5 were the style of coiffure, the type of footwear, and the length of the sloping shoulder and chest portion which was attached to the main body of the doll.

Throughout the fashion-conscious nineteenth century, women's hair styles have varied considerably, and the hair styles of china dolls similarly reflected the changing trends (Miller 1979: 54-66; Christopher 1971: 220-229; Fawcett 1964: 35-54). Dolls bearing the most elaborate styles were beyond the means of most buyers, however (see Eaton 1975: Plate 48 for two superb examples). As a result, in common, mass-produced models, hair fashions were more stylized and tended to reflect the dominant characteristics of prevalent styles rather than exact details. A major



Figure 11.04: "Frozen Charlottes" and "Frozen Charlies". .were probably the most numerous of the nineteenth-century china dolls. Generally manufactured nude, they were dressed with a wrap of cloth or twist of ribbon. (Fox and Landshoft 1972)

Figure 11.05: A Frozen Charlotte from N-5. .displays a seam crack revealing its manufacture in a two-piece mold. At nearly 6 inches high if complete, this specimen is large for the type. Hairstyle and facial painting are identical to those on china heads from jointed dolls found at N-5. (Ed Torres)



characteristic, for instance, of many hair styles from the 1820s, 1830s, and 1840s was hair swept high off the forehead and parted down the center (Young 1977: 130. Also see Eaton 1975: Plates 46, 47; Christopher 1971: 188, 218). The hairline on dolls of later periods, particularly the 1880s, is much lower, sometimes resulting in crowded, childlike facial features (for examples, see Miller 1979: 64-65 and Figures 11.06 and 11.07). Dolls from the 1890s often sport bangs, after a style in vogue at the end of the century. Thus, while allowances must be made for individual manufacturers' variations and requirements related to facial features, hair styles can help date the period of manufacture of china doll heads.

Doll collectors frequently use terms such as "Dolly Madison", "Mary Todd Lincoln", or "Jenny Lind" to characterize particular doll types. While commemorative figures of famous women were occasionally produced (St. George 1948:110), most of these appellations appear to have been bestowed at a later date by those who perceived a resemblance, rather than being a designation used by the maker of the doll components. Hence, although such names may suggest use as a dating device, they must be used with care and only when justified by corroborating evidence, such as illustrations in a nineteenth-century catalog.

A second chronologically distinguishing trait is the type of footwear portrayed on the doll's feet. Feet wearing flat-soled slippers or shoes usually indicate a doll dating before 1860, while those produced later show a shoe with a heel (Young 1977:130; St. George 1948:101; Fawcett 1964:18). While this attribute only indicates production before or after an approximate date, it is useful for working with the detached doll's legs which are frequently encountered in archaeological sites.

A third feature, although not as reliable, may also be taken into account for dating purposes. In the early part of the nineteenth century, fashion permitted low-cut women's gowns, a style which vanished with the new morality of the Second Empire and the Victorian era. Accordingly, many doll heads of the 1840s and earlier years have long sloping shoulders and chest portions allowing them to be clothed in low-cut dresses (St. George 1948:101; Young 1977:130). (For illustrations, see von Boehn 1972: Figures 166, 171, 172; Miller 1979:56; Eaton 1975: Illustration 47.) Dolls manufactured after the 1840s often have chestplates extending a shorter

distance below the chin than on earlier dolls, since the chest and shoulder portions were not exposed. While some later dolls have a long chestplate, too, this feature, when taken in conjunction with hair and shoe style, may provide additional confirmation for dating a particular doll.



Figure 11.06: Typical Doll Hairstyles from the 1850s to the 1870s. . . Three of the N-5 doll heads exhibit the scalloped hairline, extending relatively low on the brow, typical of this period. The doll to the right displays the chestplate hole where its head was stitched to its cloth or kid torso. (Ed Torres)



Figure 11.07: Hairstyles, Earlier and Later. . . show on these two specimens. The head on the left exhibits characteristics of manufacture in the 1840s-1850s, including a high forehead and hair pulled back tightly at an angle along the forehead. The head on right has the scalloped hairline prevalent on dolls of the 1860s, '70s, and '80s. (Jack Prichett)

FIGURINES AND JOINTED DOLLS

The N-5 collection includes both figurines and parts of jointed dolls. Both porcelain and bisque ware specimens, sporting a variety of footwear and hair styles, were found. The range of variation includes a marked diversity in types and apparent age.

FIGURINES

Seven specimens of the "Frozen Charlotte" or "Frozen Charlie" were found in the N-5 fill. They range in height from exactly two to five inches and thus appear to have been produced to sizes measured in the English system. All were made in multiple molds, with two of the seven hollow and the rest solid; all are glazed porcelain except for one bisque example (see Figure 11.05). Because four of the specimens are missing heads, it is impossible to determine whether they represented male or female figures, since genitalia and busts were not portrayed. The three dolls which have retained their heads are all females whose hairstyles appear to be the "Flat Top" illustrated in Foulke (1978:93), with attendant low forehead and scalloped borders on the forehead and temples. The four torsos are nude and impossible to date because the type was produced throughout the second half of the nineteenth century (Coleman 1968:241).

One unusual figurine head (P-289) has a shawl over the hair, suggesting that the doll may have been part of a crèche scene. The rear portion of the head is unglazed, as it might be in a crèche scene where the figurine is viewed only from the front.

JOINTED DOLLS

Locked in bay fill for 100 years or so, the strips of fabric or leather connecting the parts of jointed dolls have long ago rotted. The ceramic portions, however, remain.

Heads: Various sized heads and necks, including portions of the chest, from eight separate jointed dolls were found (see Table 11.01). One exhibits a perforated chestplate, where it was stitched to the doll body.

TABLE 11.01
CERAMIC DOLL HEADS

Catalog Number	Hairstyle or Head type	Dates	Dimensions	
			Height of Head from Chin to Crown	Estimated Height of Complete Doll
N5-M-232	"Flat Top" Hairstyle	1850-1870	1 7/8"	10
N5-M-409	"Flat Top" Hairstyle	1850-1870	1 3/8"	6 1/2"
N5-M-410	"Flat Top" Hairstyle	1850-1870	1 1/16"	6"
N5-L-309	"Flat Top" Hairstyle (var.)	1850-1870	2 1/8"	12"
N5-U-472	"Flat Top" Hairstyle (var.)	1850-1870	4 1/2"	26"
N5-U-638	"Covered Wagon" Hairstyle	1840-1860	1"	4-4 1/2"
N5-U-156	Biedermeier head	1830-1840	2 1/4"	13"
N5-U-605	Bisque head, bald	1850-20th Century	1 1/4"	6"

Three of the heads (M-232, M-409, M-410) are virtually identical except in size (see Figure 11.06). Their hair style appears to be the one labeled "Mrs. Bumblebottom" by Miller (1979:58) and "Flat Top" by Foulke (1978:58). A fourth head (L-309) is similar to these three. On the basis of the hair style, these four may be dated to the period 1850 to the 1870s.

The largest head in the collection (U-472) probably dates from the same period and appears to have her hair done in a slightly modified form of the "Flat Top". This doll's unusual features include brownish-black lips, rather than the almost universal red-orange, and the near absence of cheek coloration. The doll's blue eyes are of the style known as intaglio, or painted, with the pupil and iris slightly recessed.

One head (U-638) may be assigned a probable date of 1840-1860 on the basis of hair style. It shows a high forehead with the hair pulled back tightly alongside the forehead and descending in a straight line at an angle toward the shoulder (see Figure 11.07). This style is sometimes called "Covered Wagon" (Foulke 1978:92; Miller 1979:55).

Another head clearly belongs to a Biedermeier doll (U-156), a type which takes its name from the term applied to German furniture decoration from the period 1816-1848 (von Boehn 1972:227). Unlike other China heads, Biedermeier heads were produced bald rather than with a molded and glazed hairdo. A black spot glazed on the pate usually indicated the place where a wig of human hair was to be attached. Most authors agree that this doll type can be assigned to the period 1830-1840 (see Figures 11.08 and 11.09). Biedermeier type dolls inevitably have flat shoes, indicating a manufacture date before 1860 (Young 1977:133; St. George 1948:100-101; Miller 1979:54; Foulke 1978:90).

The last head in the N-5 collection is a bald bisque specimen (N-605), to which a wig was once affixed. The head is solid white, except for the tinted cheeks, and it closely resembles the Biedermeier in facial features. The tonsure-like black spot typical of Biedermeier dolls, however, is missing. While bisque dolls were particularly popular during the latter part of the nineteenth century, their earliest production date is not reliably known. The year 1844 is sometimes cited, since dollmaker Jumeau was awarded a prize for his flesh-tinted bisques at the Paris Industrial Exposition in that year, and no earlier indication of popularity seems to exist (Young 1972: 92-103; Miller 1979: 6-7; Fawcett 1964:29).

Torsos: Two bisque torsos are among the N-5 doll parts. Hollow and terminating in a point at the crotch, the torsos have holes at the shoulder and hips where ceramic arms and legs were attached by wire. Rusted wire is still lodged in the leg attachment hole of one of the torsos. The single complete torso reveals a 7/16"-inch diameter hole where the neck was inserted. Total length of the torso is a 2-1/2 inches from shoulder to crotch. Midway down the spine, it bears a mold mark "3" (see Miller 1979:26).

Arms: Two of the three unattached arms in the N-5 collection were intended for use on dolls having cloth bodies. Mold cast, with no internal cavity and a deep groove near the upper end, each portrays the hand, forearm, and upper arm. The upper arm was inserted into the "shoulder" of the cloth doll body and secured with a string at the indentation. Of the two specimens at N-5, one is bisque and the other very white glazed porcelain. The latter is straight at the elbow and terminates in a spoon-shaped hand with no definition of individual fingers. This kind of arm could be used on either side of a doll.

The third arm to accompany a bisque torso of the type described above is a pale pink bisque and would be fastened by wire to the shoulder of the body. This one shows a carefully modeled hand and a mold mark in the form of a paired parentheses (see Miller 1979:26).

Legs: Five dolls' legs were recovered. The legs show the foot and terminate at the top of the calf (in two cases, just above the knee). All are made of white china with a groove at the top where they were attached to a cloth body. The length of the legs ranges from 1-5/8 inches to 5-1/2 inches. The two smallest legs are solid, while the three largest legs are hollow. On one specimen the foot is broken off, leaving a small bit of black glaze at the ankle to indicate that footwear was originally part of the decoration.

Of the four legs showing mode of footwear, two wear heeled shoes, while two have flats (see Figure 11.10). The two flat-shoed feet both show a simple boot-like shoe, with an ankle-high straight top. On one, this black "boot" is slit in the front at the top, revealing some finely painted lacing. The other shows a nearly identical shoe minus the slit, in red rather than black.

Figure 11.09: "Biedermeier" Head in Profile. . .reveals the spot of black glaze where a wig of real hair was once attached. (Jack Prichett)



Figure 11.10: Ceramic Arms, Legs, and Torsos from N-5. . .offer clues to dating the dolls. The two legs on the left are flat-soled and unornamented, with simple lacing in front (not visible in photo). The two legs at right have boots with distinct heels and color-capped toes with matching colored tassels. The latter reflect the heightened attention to fashion in shoes found on dolls dating from the 1860s and '70s. The grooves around the top of the legs enabled them to be fastened with wire or string to the stuffed bodies. (Ed Torres)



Figure 11.08: "Biedermeier" Doll Heads. . .are distinguished by the absence of molded, glazed hair. This specimen found at N-5 exhibits especially fine pink shading on the cheeks and carefully painted pupils in the eyes, suggesting the care taken in its manufacture. (Jack Prichett)

The two feet with heeled shoes differ notably from the flats. On both the boot top rises well above the ankle to a peak at the front of the calf. At the front of the boot is a tassel, different in color in both cases from the color of the boot itself. Above the curve of the calf, both legs are tied with a glazed string garter. The toes of both shoes are glazed black. In all, the heeled footwear--both shoes and garters--is much brighter and more ornate than that appearing on legs with flat shoes.

As indicated above, the presence of heeled shoes is itself a time marker signifying a post-1860 date of manufacture. The two legs with flat shoes probably date to an earlier time period.

USING DOLLS IN HISTORICAL ARCHAEOLOGY

Although dolls frequently begin life as children's playthings, they often "live on" to become childhood mementos and eventually attain the status of family heirlooms. The discovery of the dolls at the N-5 site provides a particularly illustrative example for discussing the issue of dolls as heirlooms and the caveats surrounding their use as dating instruments in historical archaeology.

Presuming, on the basis of the historical data reported in Chapter 5, that the dolls were deposited at N-5 as part of the landfill introduced in the early 1880s, what do they reveal as a group when compared to other artifact classes such as bottles? Two types of datable material exist for comparisons. One is the collection of 45 labeled soda water bottles which may be precisely dated through city directories and other published sources (see Chapter 8). The other is a group of Chinese ceramic artifacts bearing potters' "reign" marks which record the name of Chinese emperor at the time of the piece's manufacture (see Chapter 9).

Analysis of the 45 soda bottles found at N-5 indicates that most of the bottles bear labels of firms active during the 1870s (see Table 8.02). Of the 45 bottles, only one may have been manufactured before 1870--a Pacific Congress bottle which might date to 1869. The remaining 98 percent are attributable to the 1870s or early 1880s. If we select 1883 as a conservative mean date for landfilling activities at the site (photographs indicate that most filling was completed before that date) and if the mean age of the bottles at that date was 6.6 years, the mean date of bottle manufacture becomes 1876. This date and the fact that **none** of the bottles is older than 1869 indicates a relatively recent age and extremely homogeneous age for the bottles at the time of their deposition at N-5.

While it is impossible to compute a comparable statistic for the corpus of doll parts because their dates of manufacture cannot be bracketed as precisely, an analysis of the 26 doll parts found at N-5 reveals that two legs and heads, or about 15 percent of the doll parts, may be reliably attributed to a pre-1860 origin. The Biedermeier head, in particular, predates the Gold Rush and must certainly have been carried to San Francisco rather than purchased in the frontier town.

The two flat shoes and the "Covered Wagon" head, while possibly parts of new dolls sold in San Francisco during the 1850s or 1860s, still testify to a longer artifact life prior to being discarded than do any of the soda bottles. Finally, dolls such as the Frozen Charlottes, the two legs with heeled boots, or the single bisque head may easily date from the 1860s, thereby increasing the overall age of the collection. Thus, while doll parts cannot be as precisely dated as the soda bottles, it is evident that the dolls include a number of specimens significantly older than any soda bottle in the N-5 collection and, further, that the doll collection as a whole is older than the corpus of soda bottles.

The range of doll dates may also be compared with dating obtained from occasional reign marks on Chinese ceramics collected at N-5. Of several hundred specimens recovered, only seven bear reign marks, but all are the mark of T'ung Chih of the Ch'ing Dynasty, ruler from 1862 to 1874 (Fenn 1966:xxvi). While this date range is slightly earlier than that of the soda bottles, it is both later and shorter than that yielded by the doll sample.

It must be emphasized, however, that dating by reign marks has drawbacks. In the 1860 census, the Chinese in San Francisco comprised only about 5 percent of the population (see Sandmeyer 1939: 16-22), and hence the importation of wares from China during the 1850s would have been significantly less than during later decades (by 1880, for example, the Chinese in San Francisco had doubled to 10 percent). In addition, the proportion of mark-bearing ware to less datable unmarked ware in the sample is very small, thus raising questions as to its typicalness. Nevertheless, the reign marks indicate a time span within 20 years preceding the filling behind the seawall at N-5. These data are consistent with the conclusions arrived at by analyzing dated soda bottles.

Stylistic analysis of the doll parts found at the N-5 indicates that the dolls as an artifact class are older than other site-related artifacts. While this finding confirms what is suspected from known cultural practices concerning dolls, the N-5 site provided a relatively clear-cut chronological framework in which to systematically examine doll parts in an archaeological context.

ANTICIPATING THE UNEXPECTED--CONCLUSIONS FOR THE FUTURE

The unexpected always happens.

Bartlett's **Familiar Quotations**

Having examined in detail the methods and tools of historical archaeology and having ranged the globe from San Francisco to China and Great Britain in order to consider artifacts varying from dolls' heads to whaling ships, it is no less important in closing to explore the general and theoretical conclusions suggested by the archaeological work of the Wastewater Management Program. Four broad areas of concern will need to be touched upon:

- the substantive results of the historical and archaeological research conducted in the four years between the inception of the program on paper and its conclusion with this report.
- the implications of the San Francisco Wastewater archaeological program for the theory and practice of historical archaeology. As observed earlier, the discipline is young, and its basic orientation as "historical" or "scientific" is still being disputed.
- the lessons, both in goals and in methods, suggested for the design of future large-scale, publicly funded, urban archaeological programs.
- the need to re-evaluate some current artifact typologies, substituting new ones better suited to the needs of archaeologists than collectors of historical objects.

Because it is impossible to disentangle these four concerns, the discussion below will focus--as did the preceding chapters--on the main archaeological finds, the North Point dump site and the King Street Ship.

They will be approached, however, with the larger objective of examining their implications for future theory and planning.

LANDFILL AS HISTORICAL ARTIFACT AND ARCHAEOLOGICAL MATRIX

This report would be incomplete without some general considerations on the phenomenon of urban landfill as a subject for archaeological inquiry. To be certain, fill, which has been continuously placed and laboriously distributed to mold and shape the city front since the early 1850s, represents the dominant and most predictably encountered man-made feature of the San Francisco waterfront. Along the entire 6.2 mile route of the North Shore and Channel outfalls sewer expansion projects--from the Palace of Fine Arts near the foot of the Golden Gate Bridge on the north to China Basin on the south--the original shoreline of the bay is encountered only briefly in five locations. The rest of the land is man-made. In short, then, it is not possible to examine the results and implications of the San Francisco Wastewater Management archaeological program without continual reference to landfilling and its consequences.

Urban landfilling, of course, is not limited to San Francisco. Rather, it represents an intergral component of the development of many cities. In this vein, Barbara Ann Liggett, in a recently completed Ph.D. dissertation, aptly notes that "the primary strata encountered in urban archaeology is fills of various kinds" (1975:73). As our cities increasingly become the focus of systematic archaeological study, it is important that we increase our awareness and understanding of this landfilling as a cultural phenomenon.

Landfill can legitimately be viewed as both a cultural object and a historical process, and its study can therefore embark from one of two theoretical perspectives. As a historical process, filling is a part of urban evolution. In San Francisco, an investigation of fill as process would examine the who's and why's behind the raising and lowering of grades and filling in different parts of the city, and in so doing would touch on some of the liveliest debates and more colorful schemes for the city's expansion. These would include the early debate over reducing Telegraph Hill (Board of Engineers 1854) and Asbury Harpending's grandiose but never completed

scheme to level Rincon Hill, while using the resultant rock rubble to fill Mission Bay (Harpending 1913:148).

Landfill may also be investigated as a stratigraphic matrix in which archaeological specimens have become imbedded. Let us briefly examine each of these viewpoints in turn and consider their relevance for urban archaeological studies in and around the San Francisco waterfront.

In the minds of some, landfill is a legitimate and worthwhile object of archaeological investigation in and of itself. Liggett, in advocating such an approach, asserts that:

Fill does carry historical meaning to the careful archaeologist. In itself, it is an artifact, its placement an event, rather than a phase or period with the implication of slow, continuous accumulation.

The first major implication of fill's presence is that some activity occurred; it had a purpose. Fill is man-made, in the same sense that an artifact is man-made. It has specification, can be described as to texture, color, density, extraneous material present etc. . .(Ibid).

Liggett's assertions are, of course, valid in a general sense because in theory fill, like any artifact, can be deemed intrinsically worthy of anthropological study. However, from the standpoint of methodological practicality, the tools and techniques at the disposal of the archaeologist may not be the most efficient means of shedding light on the central intellectual issues associated with the study of urban landfill. The insights which the present authors have gleaned from their work along the San Francisco waterfront in fact suggest strongly that the study of landfill as either a distinctive cultural feature or as a developmental historical process may be more profitably addressed by historians than by scientifically oriented archaeologists. For example, the role of landfilling in the speculative schemes and the growth and prosperity of certain areas of San Francisco is a topic about which a great deal of information is available. Noteworthy is Henry Meiggs' endeavor in the early 1850s to promote North Beach, which included filling several low-lying blocks in the vicinity of his renowned wharf (Stewart 1946:8-11). Maps, explanation of claims and counterclaims, and some of the details of landfilling at Filbert and Battery streets, all assembled as part of the rivalry for deep-water wharf space, have come down to us in the form of legal records from the Eldredge vs.

Cowell case of 1852. The court records, plus a plethora of other historical materials, enable us to gain a detailed understanding of the how's and why's of the development of "Warehouse Row" that would not be possible through purely archaeological investigations.

It goes without question that the saga of urban fill forms an integral part of San Francisco's evolution, and an understanding of why and how certain parts of the city were filled before or instead of others provides illuminating insights into local history. Yet while the roles played by land speculators, municipal officials, and railroad moguls in the city's development are closely related to landfilling, these issues are again more profitably tackled by the historian (see, for example, Olmsted et al.: In Press).

In San Francisco, a relatively extensive archival record documents the mechanics, chronology, and physical sources of local landfilling. Gerald Dow's M.A. thesis, for example, makes use of primary sources, including city statutes concerning waterfront property, Municipal Reports, and construction industry newsletters, to compile an extensive and detailed history of the filling of San Francisco Bay (1973:241-242 and Appendix 2). Most of the essential questions concerning the materials used to fill the bay, their origins, and the chronology of their placement would certainly be more profitably tackled through consultation of the historical record than by archaeological fieldwork. Of course, numerous aspects concerning landfilling in San Francisco have not been fully documented archivally, and, in these cases, archaeological data would prove a useful adjunct to historical investigation. But even in these instances, archaeological investigation would not be aimed at nomothetics or the formulation of "the big picture"; rather, it would remain, in South's words, "a clotheshorse of history" upon which bits and pieces of information are hung, but from which no conclusive or generalizable story can be told (1977a:23).

In other parts of the United States, particularly the East Coast, where extensive land modification has taken place for several centuries, the archaeological investigation of landfill deposits may reveal aspects of history not recorded in documentary sources. Faulkner et al. (1978) in their study of the waterfront at Newburyport, Massachusetts, were able to distinguish successive depositions of fill, sometimes varying 75-100 years in age. This stratigraphic record, together with exposure of features such

as buried gutters and foundations, comprised an archaeological sequence much more akin to a classically stratified site than the single horizon of landfill encountered along the San Francisco waterfront. Likewise, in Alexandria, Virginia, landfill along the old port areas of the Potomac riverfront has progressively altered that section of the town since the 1600s (Cressey et al. 1978). But in the western United States, including San Francisco, where filling only rarely pre-dates the California Gold Rush, the study of the phenomenon of landfill as an event in and of itself does not seem to merit a high place on a list of archaeological research priorities.

Let us now consider the problem of investigating fill as a stratigraphic matrix in which artifacts or features may be buried. In the past, many urban sites have been routinely dismissed as unworthy of attention because they are encountered in disturbed, unstratified context. Recently, based upon the finding of new research in urban areas, however, archaeologists are beginning to question some long held preconceptions about the potential significance of such sites.

In analyzing urban landfill sites, it is useful to distinguish between the problems of disturbance of a site by subsequent historical activities and the nature of the secondary deposition itself. Disturbance of a site due to earthmoving activities or later construction, in fact, may be the norm rather than the exception in the urban context. Whereas the archaeologist working the plains or the margin of a river valley may expect to find the classic "layer cake" of superimposed strata, his urban colleague must consider "disturbance" in quite a different manner. The intensity of land usage in a city and the diverse variety of activities centered there are the very features which characterize urban life, and the urban archaeologist must learn to work within this context. Liggett puts the point well in her discussion of "disturbed" fill:

The basis of preference for an 'undisturbed' site is that what is under the 'overburden' is thought to be a kind of time capsule, not tampered with by ensuing generations. When studying a city as a process, however, the important fact is that the first period is disturbed by the second; that it, in turn, is disturbed by the third, and so on, each with its contemporary story to tell, throughout the city's life.

Urban sites are disturbed, indeed, but that very disturbance creates its own stratification. Coming to grips with the man-made disturbance which urbanization leaves in its wake is a matter of accepting its strata in the traditional manner and treating it as a routine field problem of identification and description (1975:72).

In segments of the Wastewater archaeological program where previous building had taken place, this sort of "disturbance" was frequently encountered. This was most clearly visible at the site of the Southeast Treatment plant, being built in the former "Butchertown" area of San Francisco (see Olmsted et al.: In Press for an account of the archaeological findings at that site), and at the N-5 pump station (see Chapter 5 above). At N-5, the upper seven feet of soil contained the sort of stratigraphic mix described by Liggett. "Disturbance" attributable to recent landscaping, construction of the existing pump station, and the burying of foundations for previous warehouses produced a mix of artifacts which spanned the century between the 1870s and 1970s.

Below the "disturbed" level, however, the original fill placed behind the seawall in the 1880s extended downward some 10 to 13 feet. The question raised in considering this second layer of material was not that of twentieth-century disturbance, but rather that of interpreting data recovered from a situation of secondary deposition, i.e., material **redeposited** from its original location.

From the inception of the Wastewater Management archaeological program it was known that a considerable quantity of cultural debris would be contained within the N-5 landfill. What was not known was whether or not this fill would yield any useful stratigraphic or contextual information to illuminate the artifacts.

Initially, the findings of the exploratory mechanical borings, coupled with the available archival information concerning N-5, led the Principal Investigator to conclude that the lower levels of artifact-bearing fill would lack sufficient contextual integrity to constitute a significant archaeological resource. Therefore, no recommendation was made for a systematic program of archaeological investigation as means of mitigating adverse impacts to the cultural resources known to exist there (Pastron 1977b:32-33). During the course of archaeological monitoring of construction work, how-

ever, it began to appear that the site might conceivably possess a greater amount of contextual information than had originally been foreseen.

While observing the construction work, the Principal Investigator noted from time to time that certain types of artifacts seemed to be consistently found in a specific part of the site. For example, a number of stoneware crucibles used in precious metals assaying and smelting were retrieved from a limited area of the deposit (see Chapter 10 for a description of these artifacts). While no definite attribution is possible, it may be noted that the large Selby Smelter operated not far away on Bay Street and that Asmus Hansen, who owned a small lot at 856 Bay between Larkin and Hyde streets, performed assays for the smelting plant (**San Francisco Waterfront: 653-655**). Whoever had discarded the crucibles had dumped the intact vessels in a group, not one by one and not because they were broken. Historical sources document that Selby ceased operation of the Bay Street plant in 1885, and doubtless it was closing down activities in the preceding year or so. Since 1883-1884 corresponds to the time N-5 is known to have been filled, the crucibles may represent deposition of trash from the Selby Smelter.

While the hectic pace of construction at N-5 made it impossible for archaeological personnel to record precise measurements which might have helped in the identification of the provenience of some of the artifacts being uncovered at the site, the above observations raise tantalizing possibilities suggesting that secondary deposition landfill may contain considerably more contextual information than most archaeologists would have once assumed. At the very least, the evidence gleaned from the San Francisco Wastewater Management archaeological program suggests that such a possibility be carefully investigated in the future.

Landfill such as that placed behind the seawall offers the archaeologist a degree of chronological control over his findings often not available at many other types of sites. Documentary evidence provides direct proof of when deposition occurred; in the case of N-5, for example, this occurred during the five years between 1880 and 1885. It then becomes possible to explore the range of variation in style, origin, and date of manufacture among artifacts in a large collection deposited during a precisely known period. Thus, in a sense, the more commonly encountered situation--where

artifacts are used to date a site--is reversed, and instead the known date of deposition is used to shed light on the artifact assemblage as a whole.

While only a beginning has been made to explore this research possibility and while far more stringent sampling procedures are called for than were possible at the N-5 site, the analyses in these volumes suggest some of the archaeological problems that may profitably be studied in landfill dump situations. The examination of doll parts recovered from N-5, for example, showed that the dolls as a class covered a greater range of manufacture dates than soda bottles (see Chapters 8 and 11). This finding was tentatively attributed to the preservation of dolls as heirlooms and childhood keepsakes. In the conclusions to Chapters 7, 8, and 11, we have called further attention to the need for examining patterns of usage and reasons for deposition of differing artifact classes.

This idea suggests another need in the field of historical archaeology: that of examining critically, and frequently abandoning for purposes of analysis, some of the classificatory schemes established in the past by collectors of dolls, bottles, and ceramics. In the case of dolls, for instance, collectors frequently distinguish between "fashion" dolls and those with Parian heads, a distinction based on functional and aesthetic, rather than morphological and chronological grounds. From the archaeological standpoint, classifications more useful for purposes of dating and also for proper understanding of the manufacture and marketing of dolls would be based on manufacturers' nomenclature as evidenced in nineteenth-century catalogs and on technological features carefully documented through primary research into dates of official patenting. At present, however, the only categories for conducting research on dolls are those established in the publications aimed at amateur collectors (see bibliographical sources for Chapter 11).

Historical bottles also need an archaeologically oriented typology based on the catalogs of glassware manufacturers' and inventors' patent dates, rather than on the criteria established by bottle collectors. One problem with the collector's typology arises from the practice of classing bottles according to their contents, which are not always certain, rather than in accordance with internally consistent morphological criteria. Even here, collectors are often arbitrary, since, for example, "bitters"--a class

which collectors treat separately--should properly be considered as an alcoholic beverage or a drug (see Chapter 6 and Appendix B).

A more basic designation keyed to the glass manufacturer's terminology, on the other hand, would standardize--or at least make explicit--the basis of classification and return the point of departure for analyzing the bottle to the properties of the artifact itself. In addition to the catalogs of the Illinois Glass Company and Whitall, Tatum Company of Philadelphia, cited in Chapter 7, other catalogs also exist to aid in this task (Frank Sternad, personal communication).

Basing bottle classification upon glassmakers' specifications would be particularly helpful in discussing archaeologically retrieved bottles which lack labels to identify contents. Some bottle types, however--particularly soda water bottles--were commonly embossed at time of manufacture with labels indicating product and company. The N-5 soda bottle collection, as we have seen in Chapter 8, demonstrated the relatively ephemeral life span of soda bottles, apparently a mortality linked to the transience of many soda water manufacturers. Research in the city directories for the late 1870s and early 1880s showed that many of the firms whose bottles were uncovered in fact went out of business in the years immediately preceding 1885, the "cut-off" date for filling and deposition at the N-5 site. Unless a soda company going out of business could find another firm willing to buy its embossed empty bottles at a discount, the bottles of a defunct firm would become useless and ultimately dumped into a trash deposit. Grocers and other merchants holding stocks of the empty bottles collected for return doubtless discarded them in a bunch. Thus, trash deposits bearing quantities of a particular brand of soda bottle must first be examined for this possibility, since the discarding of soda bottles may reflect more the vicissitudes of business than the preferences of consumption in the area of an archaeological dump site.

Although these sorts of speculations evolved out of the data produced from the N-5 site, they are initial formulations only, limited by the methods of data collection and the nature of the sample obtained at the site. Nonetheless, they suggest some archaeological ramifications and areas of investigation for future work in landfill dump sites.

FINDING THE UNANTICIPATED LYDIA

First-hand experience teaches that even a detailed archival search can fail to reveal the presence of major underground features. **San Francisco Waterfront**, which contains the historical and archaeological research completed prior to the beginning of sewer construction on the waterfront, devoted 101 pages to the history of a small, two-and-a-half block segment of King Street (pages 139-240). Six of the pages treated the section of King Street between Second Street and the Embarcadero where the whaling ship **Lydia** was ultimately, and unexpectedly, uncovered. In the course of research on the C-2 area, dozens of historical maps and photographs were consulted, none of which noted any abandoned hulk. In fact, the documentary evidence, including detailed harbor charts which indicated maritime traffic lanes and major obstructions to navigation, made clear that until the erection of the seawall, this site at the foot of today's King Street was in the heart of the busy Pacific Mail Steamship Company's docking basin--hardly the spot for a hulk to repose for any length of time. All available primary historical documents relating to the development of King Street from the days of Steamboat Point and South Beach in the 1850s through the installation of the seawall in the early years of the twentieth century failed to note the ship's existence. Even the Healy-Tibbetts photographic records of construction on the seawall showed no trace of a ship. As if by historical caprice, views of the Pacific Mail basin--of which there are many sparkingly clear images--were all taken from perspectives in which the site of the King Street ship was hidden (see, for example, Figure 4.44).

After the ship was discovered during construction work, an exhaustive, day-by-day search of newspaper files for 1907 finally turned up references which documented her final demise (see Chapter 4). To have suggested that such a meticulous newspaper search be carried out in advance for every waterfront section without convincing evidence of a buried hulk, however, would have been unjustifiable on either methodological or financial grounds. Indeed, in the case of King Street, all of the available archival information strongly suggested that the remains of such an artifact were not to be expected. The **Lydia**, therefore, provides an example of

an unanticipated major discovery made after completion of a thorough archival and documentary historical search. As such, the find raises several issues central to archaeological resources management in urban settings.

Significance of the Lydia

The remains of the **Lydia** represent a major historical find which, accordingly, has been nominated for placement on the National Register of Historic Places. Among the most important aspects of the vessel are the well preserved, apparently complete portions of the stern lying immediately to the east of the C-2 sewer (see Figure 4.11). This stern portion constitutes one of the few intact keel-to-deck sections of a large, nineteenth-century American-built merchant ship yet discovered. Of particular significance from the standpoint of maritime history and naval architecture is the fact that the water lines and other construction details employed in merchant vessels were excluded from the instructional books and pamphlets of the period. Therefore, it is of great interest to have discovered a section of a hull in which these construction features can be examined and measured.

In the preceding description the **Lydia's** significance has been discussed both as an historical object (i.e., the intact structural remains of the vessel itself) and as an historical archaeological site. National Register criteria (36 CFR 60.6) specify in this regard that some historical properties may possess more than one kind of historical value, and, in the case of the **Lydia**, it is essential to include the soils surrounding the vessel as part of the property. The archaeological nature of the find means that the surrounding soil matrices may yield further clues to the events leading to the ship's demise and burial. In addition, parts of the ship's superstructure and other associated artifacts or cargo may lie buried in the landfill near the ship. Finally, inclusion of not just the ship but the site as part of the National Register property would guarantee access to the still intact portion of the hull beneath the ground surface and prevent the occurrence of indirect adverse impacts to the remains which could result from construction or land modification immediately adjacent to them.

It is the **Lydia's** characteristics as an historical object--her significance as a specimen of a nearly vanished class of maritime architecture

and a participant in San Francisco's once thriving but now extinct whaling industry--rather than her specifically archaeological attributes which formed the principal basis for evaluating her significance. Ironically, however, this very fact contributes to the paradox of the archaeology of the unanticipated find. When an object of unknown derivation and significance is encountered during the course of a construction project, the only data immediately available are those revealed by the archaeologist's probe. Identification of an unknown object can only be achieved through exposure and examination. Once this has been accomplished, the feature takes on a new status, bounded by the defining parameters of space and time and representative of a particular historical and cultural configuration. The **Lydia**, a prime example of an East Coast whaler of the 1840's, which capped her career sailing out of San Francisco, is just such a case.

Whether the **Lydia** is of sufficient historical significance to merit placement on the National Register of Historic Places will ultimately be decided by the U.S. Secretary of the Interior. Regardless, however, the questions of theory and purpose in historical archaeology posed by Stanley South (see Chapter 1) still apply. The account of the ship's discovery and identification presented in Chapter 4 is doubtless "particularist" rather than "scientific" and generalizable in content. It is the record of a particular excavation and a particular ship, arising from an unanticipated encounter.

We do not mean to imply that the study of cultural evolution or the collection of data in terms of general theories is either undesirable or inapplicable to such a research situation. Rather, we note that in the case of an unanticipated archaeological discovery, the first requirement must be the identification of the feature in question; once this has been accomplished, a more complete historical background must next be assembled. Only then is it possible to place the find into a larger, comparative framework.

Procedures for Coping With the Unexpected

The discovery of the **Lydia** underscores the necessity for procedures to deal with the possibility of encountering the unexpected archaeological find of potential significance during the course of construction. The Code of

Federal Regulations treating the investigation and disposition of cultural resources (36 CFR 66) contains general guidelines designed to assist the researcher who encounters such a find. However, throughout the course of the Wastewater Management Program, the Principal Investigator and his associates have had to cope first hand with the often vexing reality of the unanticipated archaeological find and have, as a result, gleaned insight into some of the problems and conflicts which often go hand-in-hand with such a discovery. Therefore, as part of this concluding chapter, a brief consideration of this important subject is appropriate.

The circumstances surrounding any given archaeological find of potential significance vary considerably from one case to another. Categories of artifacts or features of great significance in one local setting may not be deemed so in another. Therefore, any set of procedures designed to cope with the unexpected archaeological discovery must possess sufficient flexibility to cover a wide range of possible situations. The procedures must also take into account the varying legitimate interests of all parties likely to be affected by the manner in which the find is dealt with -- the sponsoring agency, the contractor, involved government bureaucrats, archaeologists and historians, concerned ethnic groups, and so forth. In short, as much as one might wish to create an all-encompassing set of procedures capable of accounting for any conceivable eventuality, there are simply too many possible variables associated with archaeological features to permit this. In reality, any workable set of procedures designed to deal with such chance encounters of potential importance must allow considerable latitude for case-by-case flexibility.

Strategies for dealing with unanticipated archaeological finds must contain provisions for calling an immediate cessation to construction work in the zone of impact for a reasonable period of time to allow for the systematic professional assessment of the find. The precise definition of a "reasonable period of time" will, of course, vary from situation to situation depending upon the nature of the following circumstances: (1) the complexity of the construction in the vicinity of the discovery; (2) the size, depth, provenience, and potential significance of the archaeological resource; (3) the archaeological clarity, focus, integrity, and state of preservation of the find; and (4) the scope of the investigative measures

needed to determine any or all of the above, as well as the costs involved for the project sponsor. The combination of one or several of these factors will ultimately determine the "reasonable period of time" for any specific situation. However, it is important that all of the parties concerned with the discovery quickly reach agreement regarding the amount of time and funding available for identifying the resource and assessing its significance.

Once the practical matters of budget and scheduling have been established, it is essential for all parties concerned to agree upon a precise scope of work which outlines in detail the goals, methods, and specific responsibilities of each party involved with the research to be undertaken. In the case of the *Lydia*, the research program consisted primarily of archaeological excavation designed to expose as much of the vessel as possible for maritime experts who would, in due course, evaluate the vessel's structural attributes and state of preservation. Recommendations for the ultimate disposition of the resource would follow from this professional assessment.

Procedures designed to evaluate the unanticipated find must allow sufficient time for consultation by outside experts. In the case of the *Lydia*, the opinions of Ray Aker of the Drake Navigator's Guild and Karl Kortum and Harlan Soeten of the National Maritime Museum at San Francisco among others were essential components of the program of research and contributed significantly to its ultimate outcome (see Chapter 4).

It is also important for the various parties concerned with the project (archaeologist, contractors, agency sponsors, and others) to meet regularly and discuss the progress of the work and its anticipated results. Such meetings allow for an airing of the widest possible spectrum of viewpoints which will lead, it is to be hoped, to an acceptable consensus about the ways in which the work shall proceed. This type of consultation also allows an exchange of technical information, coordination of activities, and so forth. For example, during work on the *Lydia*, the contractor provided the archaeological team with several pieces of heavy equipment and a certain number of laborers. In addition, he agreed to keep his de-watering shafts in place to facilitate further archaeological investigations on the still-buried remains of the ship after completion of the C-2 sewer trench. Regular meetings between all concerned parties are also important because

they give pause to the pressure and intensity which these types of projects customarily generate and remind everyone that a diverse mix of interests and perspectives, all legitimate, needs to be taken into account when it comes time to render essential decisions concerning the disposition of the remains at hand.

Finally, throughout the process of studying an unanticipated archaeological find, continual effort must be made to formulate appropriate alternative strategies for dealing with the remains as they are exposed and their significance understood. In the case of the **Lydia**, it was decided that construction could resume within the C-2 trench, but on a section of the sewer beyond the ship, thus "leapfrogging" the portion of the excavation where archaeological fieldwork was still in progress. Decisions must be made in a spirit of compromise, reasonableness, and an awareness of the project's complexity and diversity. Again, in the case of the **Lydia**, a compromise solution was reached regarding the ship, and the entire portion of the vessel inside the sewer trench was removed intact for further study. This solution, while not totally satisfactory to either the interests of pure research or the aims of the contractor, nevertheless allowed both data recovery and construction work on the project to proceed without undue impediment.

We have not touched upon all of the possible components which might be included in a set of procedures to deal with an unexpected archaeological find encountered during the course of a construction project. But experience with the **Lydia** has provided valuable lessons concerning the complexity of dealing with unexpected finds during the course of a high-pressure, urban construction project. In the final analysis, flexibility and a willingness to compromise on the part of archaeologists and historians are essential if the former are to remain viable and integral components of urban renewal projects.

Recent legislation has given archaeological investigators considerable authority to influence federally funded projects on which they have been retained as consultants. We suggest that this authority must be used judiciously. Every artifact or feature cannot be saved or investigated to the fullest, nor should an attempt be made to do so. While existing law and precedent allow for appropriate study, examination, and possible preser-

vation of archaeological resources of significance, it must always be remembered that this public trust must not be abused or exercised improvidently. In our earnest desire to study and preserve the past, we must not unduely impede the efforts of those concerned with shaping the present.

Zones of Historical Transition

Discovery of the **Lydia** points up a lesson to researchers seeking potential archaeological resources: the necessity of examining locations closely associated with any period of historical transition. Transition periods are the timespans immediately following introduction of an important technological innovation or completion of a major alteration in the local environment. An example of this kind of important innovation would be the extension of piped water to a new section of a city. To repeat Roger Olmsted's apt phrase from Chapter 4, "It is precisely at the moment that the piped water system is installed that the householders throw the collected refuse of the attic, basement, and backyard down the now obsolete well." Other major alterations in the environment would include the filling of a swamp, the completion of a major bridge--or the erection of a seawall.

In the case of San Francisco's south waterfront, construction of Section 12 of the seawall ended the use of the Pacific Mail Steamship Company's docking basin. Only the brief period between the completion of Section 13, which left the basin still open to the bay, and Section 12, which closed off the basin completely, made it possible for the **Lydia** to have reached her resting spot and sink without posing a hazard to maritime traffic which had already been diverted to new piers (see Chapter 4). Thus resting in a zone of historical transition, the **Lydia** was simply left in place and soon filled over.

The boundaries of this kind of transition zone may be difficult to define in precise geographic terms, or they may be easy to demark as in the case of areas between an old shoreline and a new seawall. Likewise, how long a site or a feature remains a zone of historical transition may depend on multiple factors. In sites behind the seawall, the transition period extended only until filling was completed, generally a very few years. The tight bunching of dates of manufacture of soda water bottles

collected from N-5 fill material indicates the extent of clustering that may occur in this kind of site (see Chapter 8). In other cases, transition may extend over a relatively long time. The replacement of gas lighting in San Francisco by electric lighting, for example, took place over a 30-year period from the 1870s through the post-1906 earthquake reconstruction (Sikes 1979).

Although the concept of a "zone of transition" will not apply to all research situations, in cases such as the Wastewater program or other projects which follow a fixed route defining the area of archaeological study, the pinpointing of such zones may be of use in locating otherwise unexpected deposits of archaeological materials. Careful attention to these zones may be rewarded by greater recovery of concentrated, rich archaeological data and by a heightened awareness about the cause of deposition and the possible significance of the recovered data.

BEYOND A REPORT, WHAT?

Since the development of archaeology as a distinct field of intellectual pursuit, scholars studying the past have always been obliged to cope with the pragmatic reality of obtaining and maintaining financial support for their work. This is true even with projects customarily categorized under the rubric of "pure research". As a consequence of this need, it is generally accepted that archaeologists, like other scientists, structure and conduct their work in a manner which is in at least general accord with the interests and goals of their sponsors. Although the burden of funding scientific research has shifted from private individuals to public institutions since the nineteenth century, the fundamental relationship between scholar and patron, then, remains much as it has always been.

During the past decade, archaeological research has burgeoned and been transformed--or as some cynical observers have put it, transfused--by the advent of tax-supported programs of cultural resources management. In large-scale projects of urban archaeology, like that of the San Francisco Wastewater Management Program, the ultimate sponsor of the research is the tax-paying citizen. While this patron may be infinitely more heterogeneous, diverse, and abstract than the wealthy nineteenth-century dilettante or the board of directors of a scientific foundation, he or she is no less entitled to a program of research from which some tangible benefit can be derived.

On literally hundreds of occasions during the past several years, members of the Wastewater Management archaeological team have been observed in their work by interested construction workers, program administrators, engineers, and assorted "sidewalk superintendents" who peer over the contractor's fence and ask the simple, direct question: "What sort of work are you doing and what is going to result from it?" These people deserve an answer to their questions, because in a very real sense all of them have underwritten the costs of the archaeological research they are inquiring about. If urban development programs offer archaeologists new sources of funding and novel research opportunities, they also raise the need for critical, innovative thought about the types of results

which the public has a right to expect for its support. Particularly in the face of growing public concern about the high cost of government, it seems clear that scholars or administrators involved in these programs cannot afford to be satisfied merely with conducting research which will have little if any impact upon or interest for the public at large. As a result, during the past few years, archaeologists, historians, and agency representatives involved with cultural resources management programs in California have engaged in an ongoing discussion about ways in which the general public could derive increased benefit from the scientific research it funds (e.g., Taylor 1980, Cooper 1980, Moratto 1973). Let us briefly consider some of the goals and aims of tax-supported urban archaeological research as suggested by the findings and insights gleaned from the San Francisco Wastewater Management archaeological program.

The Written Report

The formal dissemination of information and data through reports, publications, seminars, and conferences is an essential and enduring component of any archaeological researcher's professional mandate. Indeed, it is the disciplined willingness to publish research results and the desire to share this data that form the essential distinction between the dedicated scholar and the weekend treasure-seeker whose efforts are, as often as not, guided primarily by a desire to acquire potentially valuable relics. In terms of traditional archaeological research, the publication of a thoughtful, detailed scientific monograph has generally, and justifiably, been viewed as the culminating capstone of a successful program of study. However, when considering programs of publicly sponsored archaeological inquiry, it is also important to look at the final report from the perspective of its ultimate impact upon and accessibility to the general public.

Over the years, members of the archaeological community have discussed the various ways in which their work could have larger impact upon the general public consciousness (e.g., Pastron 1973, McGimsey and Davis 1977:78, McGimsey 1972:26). Invariably, such discussions center around the manner in which archaeological data is disseminated. With a few notable exceptions, archaeologists, like members of any closely knit

professional community, tend to write for each other rather than for the public at large. As a result, many archaeological publications are filled with technical nomenclature, jargon, and cryptic graphic displays supposedly offered to further professional clarity. Works of this kind assume that their readers possess an extensive background in archaeological theory and method. Not surprisingly, it is often quite difficult for anyone other than the initiated "insider" to successfully "crack the code" of these publications and to derive digestible information, if not enjoyment, from them. The net result is that archaeological writings, despite their interesting subject matter, usually find an extremely limited readership and make a concomitantly small impact upon the thoughts of the American public.

The authors do not mean to suggest that sound scientific reportage should not be an essential end product of all archaeological research: formal, informative communication between professional colleagues is, and must remain, at the heart of any scientific community, and such writings will always contain shorthand modes of expression which may not be easily understood by the average reader. Since one of the central goals of the Wastewater Management archaeological program was the formal dissemination of the recovered data, several of the researchers associated with the project have, even before the appearance of this volume, published articles and presented papers (Garaventa 1980, Pastron and Prichett 1980, Pastron 1980). However, as noted above, it is our purpose here to go beyond the presentation of the traditional final report to explore innovative and alternative avenues of data presentation designed to increase public awareness of and interest in the process of unearthing and understanding our own past.

In Situ Display of Unique Historic Properties

Occasionally during the course of investigations, archaeologists encounter the remains of an historic property of such unique and significant qualities that it becomes appropriate to discuss the feasibility of preserving and displaying it *in situ*. The display of the Swedish warship **Vasa** in Stockholm harbor offers a world-renowned model for such *in-situ* preservation. Among the recent local examples of discoveries warranting serious consideration

for preservation and display are the three nineteenth-century ship hulks encountered at various places along the San Francisco waterfront since June, 1977--the **Niantic** (Delgado 1979a, 1979b, 1980; Parker 1980; Baker 1979), the Levi's Plaza ship (Pastron and Prichett 1979), and, of course, the remains of the **Lydia** lying athwart the C-2 trench on King Street.

San Francisco's emergence as a major American city is inseparably connected to the growth and development of the waterfront in the nineteenth century. The silent, buried wooden hulks of the once-proud ships which by the thousands sailed through the Golden Gate to bring life and prosperity to Gold Rush California have a unique tale to tell and provide a tangible bridge by which we can not only understand but experience our cultural past. Although a substantial number of Gold Rush ships were buried beneath the advancing city front during the first half of the 1850s (Olmsted, Olmsted and Pastron 1978:39, Delgado 1980) and others, like the **Lydia**, became incorporated into the urban landfill matrix years, or even decades, later, this unique flotilla is slowly being pared away. One by one, the hulks of old vessels are accidentally encountered on construction sites and destroyed without adequate study or consideration because of the unyielding demands of excavation schedules and the inflexible constraints of project budgets (Delgado 1979a; **San Francisco Waterfront**:459).

If any of San Francisco's buried Gold Rush ships are to be preserved and displayed, the planners of urban development programs near the waterfront must seek the input of historians and archaeologists during the planning phase of their projects, not at the start of construction. Historic properties discovered during project construction have a diminished chance of being preserved or adequately investigated, because thousands of dollars stand to be lost with each day's delay in the construction schedule. If the possibility of encountering a buried ship is known from the very beginning of the project, however, and if appropriate contingency plans are drawn into the contractor's schedule, the likelihood that a potentially unique historic object will be dealt with properly and thoughtfully is greatly enhanced.

Of course, the discovery of a buried ship hulk should not automatically trigger a drive for funds to preserve and display the remains. To merit such special attention the ship must, in addition to being demonstrably

unique, be sufficiently intact and well preserved, as was the Gold Rush hulk at Levi's Plaza (Pastron and Prichett 1979). Careful excavation and study of that vessel during February, 1980, revealed that the hulk was remarkably, and somewhat unexpectedly, intact and well preserved. Based upon these encouraging findings, the team of historians and archaeologists involved with the project assembled a proposal for preserving and displaying a section of the buried vessel *in situ* which has been submitted to the project sponsor for consideration (Olmsted, Olmsted and Prichett 1980).

The proposed display of the *Lydia* would leave the ship in place, where it would be accessible to public view through glass from above. A text, historical photographs of the nineteenth-century waterfront, and contemporary maritime artifacts would augment the ship itself. Such an exhibit would create a permanent historical "window" through which the observer, surrounded by the glass and steel towers of today's rapidly changing waterfront area, could glimpse the outlines of yesteryear's Warehouse Row.

Restoration and Replication of Unique Historic Properties

Closely allied to the idea of preserving and displaying unique historic properties *in situ* is the possibility of restoring or replicating them. These means of historic preservation are potentially useful for approaching the twin goals of furthering scientific inquiry and increasing public access to archaeological findings.

Since virtually the entire course of the San Francisco sewer expansion program was routed down long-existing city streets, there was little likelihood of encountering archaeological features such as a Forty-niner's cabin, which would qualify as a reasonable candidate for restoration or replication. However, San Francisco's colorful history and varied ethnic traditions remind us that future archaeological exploration in the city may well encounter historic properties of this nature and that consideration of these alternative modes of presenting information might therefore be feasible and desirable. One need only think of the success and public endorsement of such projects as the restoration of the governor's mansion in Williamsburg, Virginia, or Plymouth Plantation in Massachusetts to comprehend the possibilities of such approaches.

In Chapter 4 of **Behind the Seawall**, historians Roger and Nancy Olmsted suggest that thought be given to the idea of replicating the whaler **Lydia** for use as a "hands on" example of an American sailing ship. A similar project has already been accomplished in California with great success. The staff of the Santa Barbara Museum of Natural History has painstakingly reproduced a functional model of a proto-historic Chumash Indian plank canoe (Richie and Hager 1973), which has proved of interest to both scientists and the general public. By studying and sailing the vessel, anthropologists have gained insights regarding the technological, intellectual, and cultural achievements of an aboriginal California culture while the proud local public has gained a unique and remarkable exhibit. Replication of the **Lydia** might create a similar bonanza for San Franciscans and tourists as well. Scholars would develop their understanding of aspects of nineteenth-century shipbuilding, sailing, and whaling practices, and the public at large would be provided with a permanent, aesthetic reminder of San Francisco's enduring maritime heritage.

Public Exhibits and Displays of Archaeologically Retrieved Material

Among the frequently heard criticisms of archaeological work is one that the vast majority of the artifacts recovered during the course of any archaeological project disappear from general view forever into the bowels of curatorial facilities. To the extent that this critique is valid, archaeologists have isolated themselves and their findings from the general public to the detriment of both groups. During the San Francisco Wastewater Management Program, considerable public curiosity was aroused by the archaeological work being done along the waterfront, and most of this interest focused upon the artifacts being recovered. Members of the archaeological team were continually asked where the artifacts were being taken and when they would be put on display.

Given the interest of the public in archaeological research being done in its cities, an increased emphasis on creating thoughtful archaeological displays which illustrate aspects of local history and which feature artifacts represents a particularly attractive (and in the long run, cost-effective) way of making results visible. To date, within the San

Francisco Bay Area, a number of such exhibits have already been assembled in local museums. For example, the University of California's Lowie Museum of Anthropology, using a combination of archival and artifactual materials, has mounted a well-publicized exhibition on historical archaeological research at Somersville, a late nineteenth century coal mining town at the foot of Mount Diablo in Contra Costa County.

Established museums, however, are not the only places where exhibits of archaeological materials can be displayed. In February and March of 1980, during the excavation of the ship at Levi's Plaza, historians Roger and Nancy Olmsted assembled an on-site sidewalk display illustrating the aims and historical background of the project. By viewing the historic photographs and accompanying text, hundreds of passers-by enriched their understanding of San Francisco's maritime and Gold Rush heritage and, in a real sense, participated in the research going on below them (Figures 12.02 and 12.03). As another small example, we note that Asian ceramics recovered from the N-5 dump are currently on display at the San Francisco Chinese Cultural Center in an historical exhibit depicting daily life in Chinatown from the 1850s to the present.

From a number of standpoints, displays of archaeological materials are good ways to present information. First, they are potentially portable and can readily be designed to travel easily between public schools, municipal buildings, and cultural and convention centers. Secondly, well-designed and lively exhibits can be both educational and enjoyable. Accessible to large numbers of people, they can be assembled for a relatively small expense, and as such they represent valuable tools by which archaeologists engaged in urban research can share the fruits of their efforts with the public. Topics for exhibits related to the work conducted during the Wastewater archaeological program might include "Digging up a Whaler: Archaeologists Expose the **Lydia**", "Made in San Francisco: Bottles and Products from 1870s", and "Building the Seawall -- Why and How".

Archaeological Research Presented Through The Popular Media

Many professional archaeologists have traditionally been hesitant to present



Figures 12.02 and 12.03: A Sidewalk Display. . .featuring historical photographs and diagrams of archaeological excavation plans brought added understanding for sidewalk observers during the excavation of a Gold Rush sailing vessel in 1980. During weekday lunch hours, hundreds of workers from nearby office buildings thronged around the portable signboards, which explained how a ship had come to be buried beneath Battery Street, and how historians and archaeologists 130 years later had relocated it. Thousands of copies of a small handout describing the project were passed out. A fenced-off viewing area, together with the signboards and impromptu lectures by the archaeologists and historians working the site, provided education and involvement for onlookers. Sidewalk displays such as this one, while adding only minimally to the cost of the project, contribute immensely to public comprehension and support for historical archaeology. (John Kortum)

the results of their research in popular books and articles. However, by eschewing these vehicles for the presentation of data, archaeology has cut itself off from vital avenues of communication with interested lay persons. In the view of some, this failure in communication has reached the point where archaeology has become "the more action-oriented, but often the most intellectually introverted subdiscipline of anthropology" (McGimsey and Davis 1977:79).

To counteract these tendencies, and to allow the general public greater access to archaeological research, it seems appropriate for researchers to reconsider the advantages of popular writings. A number of paperback books -- Deetz's *In Small Things Forgotten* (1977), for example -- testify to the fact that no loss of intellectual content or merit need accompany a writing style and language which is easily understood and appreciated by a wide audience. While formal, technical communication between active colleagues must always remain a primary goal of scientific research, archaeologists would do well to consider increasing and diversifying their potential readership. If professional archaeologists are to expect the support and encouragement of the general public, they must communicate directly with lay people in a comprehensible and agreeable manner.

Books or articles, however, are only one way in which archaeologists can present their findings to a lay audience; there are a variety of alternative avenues of data presentation which researchers might profitably explore. One example arising out of the San Francisco Wastewater Management Program comes readily to mind. For a recent conference of maritime history, authors Roger and Nancy Olmsted prepared a vivid poster which summarized the structural configurations and history of the *Lydia* through drawings, photographs, historical statistics, and lively text. (One side of this poster is reproduced as Figure 12.03). Posters, which can be easily mass-produced at small cost, appeal to a diverse audience from a variety of perspectives. To the professional historian or archaeologist, they represent an innovative, stimulating reference manual; to the interested lay person, they are an esthetic educational document which is suitable for framing and wall display; to the representative of the sponsoring government agency, they represent a cost-effective means of publicizing new finds to a wide audience. Hence, from many standpoints, the *Lydia*

poster project has succeeded in both stimulating and educating the public whose money ultimately supports the research. The colorful history of nineteenth-century San Francisco, as exemplified by the findings of the Wastewater Management Program, offers numerous opportunities for archaeologists and historians to present their findings in innovative ways which are both intellectually sound and appealing to the general public.

Educational Modules For Use In Public Schools

The findings of urban archaeological research can also be used in the curricula of our public educational institutions to involve young people in exploring their own historical roots. Artifacts unearthed in San Francisco form a tangible bridge between past and present and, as such, provide the basis for developing educational modules which illustrate important events, periods, or themes in the evolution and development of the San Francisco Bay Area. The modules could be composed of filmstrips or slide shows with an accompanying taped text. Possible module topics based upon the findings of the research presented in **Behind the Seawall** include "Digging Up the Past: Urban Archaeologists at Work in San Francisco" and "How San Francisco Grew: Landfilling on the Waterfront".

The educational possibilities of such teaching aids are considerable because they would illustrate materials which provide a unique experiential link between students and their historical past. Important aspects of local history can only seem more alive and relevant when viewed against the backdrop created by actual archaeological materials which have been recovered from various parts of the city familiar to the student. The creation and distribution of these types of educational devices would also expose a large segment of the community to the field of archaeology itself, and young people exposed to the findings of the study in this way might well become lifelong adherents and supporters of future archaeological research.

Many additional methods of disseminating information to the public, of course, have yet to be mentioned and explored. We have intended here merely to stress the need for archaeologists to insure that their work reaches a much broader, diverse audience than is presently the case. In

the 1980s one of the primary challenges to archaeologists will surely be to find ways to increase public access to and interest and participation in the science of archaeology.

The Role of the Lay Archaeologist

Professional archaeologists usually cast a scornful eye upon individuals with only an avocational interest in the field. From the perspective of the professional, it is both unseemly and unethical to conduct fieldwork without proper training, to dig for pleasure or profit instead of knowledge, and to routinely destroy archaeological sites without making an effort to systematically record vital information about the findings which have been made. Individuals who behave in such fashion directly affront the archaeologist's professional creed and as such are given the derisive sobriquets, "pot hunters" and "bottle diggers".

For their part, artifact collectors view the situation from a different vantage point. They see the archaeological professional as an arrogant and overbearing outsider who commandeers the "territory" of local excavators and unjustifiably claims hegemony over the archaeological resources therein. Many amateurs feel unfairly excluded and unappreciated by the professionals they have tried to contact and work with. They resent what they see as a continual and illegitimate effort on the part of professional archaeologists to monopolize access to archaeological sites and resources.

It is significant, then, that over the course of the San Francisco Wastewater archaeological program, relations between collectors and archaeologists gradually evolved from mistrustful and uncertain to a more profitable cooperation based on common interests and shared information. Accordingly, the arena of contact moved from the edge of the construction site to the living room and the laboratory.

At first, the Principal Investigator and the archaeological monitors regarded the arrival of a "bottle digger" at the construction site as at best a nuisance and at worst a signal of a scouting mission in preparation for a clandestine nocturnal foray into the sewer trench. However, once bottle diggers realized that the course of the sewer work ran almost

entirely through landfill, therefore offering few prospects of encountering outhouse pits, and that the occasional unbroken bottle was the exception rather than the rule on this dig, their interest in actually entering the construction zone waned. With rare exceptions thereafter (see Chapter 4), depredations by nighttime intruders posed no real problems to the sites.

Because of their longstanding interests, many of San Francisco's "bottle diggers" have compiled extensive knowledge of local history and its relationship to buried materials. In contrast to the theoretical concerns of most university-trained investigators, lay archaeologists view the field from an extremely detailed and practical nuts-and-bolts perspective. They possess an intimate knowledge, based on the horse trader's desire not to be out-swapped of the classes of bottle in which they trade, and they can frequently date bottles on first sight through their knowledge of city directory listings. Familiar with local soils, they can recognize disturbed deposits, and they often exhibit useful knowledge of construction and demolition techniques used in building.

"You're wasting your time digging there. That soil was all pushed in by a bulldozer when the buildings on the block were demolished in 1970," opined "Seeds", a well-known local bottle digger. He was watching a small crew of archaeologists at work four feet below the surface in a test trench on the site of the future Moscone Convention Center. Before long the retrieval of a pop-top soda can proved Seeds right. Though the find was important archaeologically in establishing the depth of recent disturbance and further suggesting that few if any intact historical bottles would be recovered at the site, for Seeds the fact was evident from present and past visual inspection.

This street corner incident also reveals a largely unexploited potential information source for urban archaeologists. Laymen familiar with the sites and soils of their cities can be of great use to archaeologists new on the specific scene, if the amateur expertise is properly coupled with a well-directed program of scientific research.

In fact, by the third year of the San Francisco program, archaeologists and collectors were actively cooperating in the identification and dating of artifacts recovered from the Wastewater project. Collectors, for example, were often able to produce complete specimens of bottle types

of which only fragments had been recovered in the construction trench. This permitted positive comparison and identification of specimens. The rare example of a stoneware mineral bottle still bearing a paper "Schiedam" Holland gin label (see Figure 8.03) is from the private collection of Frank Sternad. Similarly, Tom Jacobs' major collection of beer bottles from local breweries of the late 1880s and 1890s was very helpful in highlighting the characteristics of the unembossed beer bottles recovered at N-5 (see Appendix B). In short, once mutual understanding was established between collectors and archaeologists working in San Francisco, it became possible to tap the wide store of informal and practical knowledge possessed by local enthusiasts.

In this connection it is worthwhile to consider the parallel between bottle collectors in the city and "arrowhead collectors" or "pot hunters" in the rural situation. In *Koster*, the popular account of excavation at a major prehistoric site in Illinois, Stuart Struever and Felicia Holton describe the unusually cooperative working relationship built up with local arrowhead collectors, whom Struever dubs "archaeologists on the landscape":

Today there are about twenty-five "archaeologists on the landscape" who help the Northwestern Archaeological Program (NAP) locate sites. They use NAP recording forms, artifact bags, and artifact tags just as we do. Staff archaeologists make the rounds for me, visiting the collectors (1980:7).

This does not mean that urban archaeologists should enlist the aid of bottle collectors in digging or locating sites. Some of the differences of perspective and purpose separating the two groups cannot--and perhaps should not--be bridged. Rather, the point is that fostering a cooperative relationship between them in which information is pooled will in the long run be far more profitable to urban archaeology than the prolongation of wary mistrustfulness that now commonly exists.

Many principled collectors desire to participate in professional archaeological research. They lack only the invitation to do so. Given a chance to learn basic research techniques and the concepts of comparative methods, these individuals can benefit greatly from sharing the scientist's and the historian's careful attention to detail and context. Reciprocally, urban archaeologists stand to gain greatly from the breadth of experience and access to large existing artifact collections offered by these lay-archaeologists.

CULTURAL RESOURCES MANAGEMENT IN THE CITY

Recent years have witnessed a resurgence of popular interest in local history and historic preservation. This trend is evidenced by a wide variety of high publicity projects in American cities, of which the renovation of Boston's Faneuil Hall and Quincy Market and the restoration of historic riverfront buildings in Old Sacramento are two well-known examples. The monthly magazine **Historical Preservation** chronicles this burgeoning interest in the preservation of cultural heritage. (In addition, the current popularity of "nostalgia", which is part of the same impulse, is reflected in the heightened interest of Americans in both antiques and "collectables", the latter ranging from barbed wire to beer cans.)

Concern with historic preservation is reflected in the enactment of a number of federal, state, and local statutes passed in the 1960s and '70s. These include the landmark National Historic Preservation Act of 1966, establishing the National Register of Historic Places; the National Environmental Policy Act of 1969; the California Environmental Quality Act of 1970; Executive Order 11593 of May 13, 1971, which directs all federal agencies to inventory historic properties under their ownership or control and nominate eligible properties to the National Register of Historic Places; the Archaeological and Historic Preservation Act of 1974, which spells out the responsibilities of federal agencies for protecting historical and archaeological resources in construction projects undertaken or authorized by them; Public Law 95-341, the "Joint Resolution on American Indian Religious Freedom", which increases protection of Native American religious sites; and most recently, the Archaeological Resources Protection Act of 1979, which increases penalties for the disturbance of cultural resources under federal jurisdiction.

Programs carried out under the provisions of these laws and their accompanying guidelines have furthered the promotion of historic preservation in a variety of ways. Of recent note has been a survey carried out in 1979-1980 by the California Office of Historic Preservation documenting the historical cultural resources among five ethnic minority groups in the state (SHPO 1980), the creation of various preservation and

planning grants, and efforts to promote rehabilitation of dwellings and commercial properties. The innovative **Rehab Right!**, published by the City of Oakland's Planning Department (City of Oakland 1978) as a guide to proper rehabilitation of older buildings, is an excellent example of the latter.

One major effect of historic preservation legislation and guidelines has been to physically bring archaeology into the city. This has happened because many large-scale federal and state-sponsored or funded projects are located in urban areas. Under the provisions of the National Environmental Protection Act and the California Environmental Quality Act, urban archaeological projects have been or are being carried out in Ventura (Greenwood, 1975, 1976), Sacramento (Schulz et al. 1980), San Diego (Jaime Cleland, personal communication), San Jose (Detlefs 1980), and San Francisco (Pastron and Prichett 1980; Pastron and Garaventa 1980; Pastron 1980; Olmsted, Olmsted and Pastron 1977; Olmsted, Olmsted, Pastron and Prichett 1979), to name only California cities.

By bringing archaeology into the city, environmental legislation has more than simply changed the locus in which the discipline is practiced. It has vastly increased the responsibility placed in the hands of historical archaeologists, as well as increased their numbers. In preparing environmental impact reports and statements, archaeologists frequently become the arbiters in determining the significance of historical or cultural properties. Their evaluations have wide-ranging impacts on the shape and sometimes the ultimate cost of construction projects. Because historic-period sites and buildings far outnumber prehistoric cultural resources in urban settings, a second major effect of environmental legislation has been an exponential increase in the amount of historical archaeology conducted across the country. Membership in the Society of Historical Archaeology has jumped, enrollment in graduate courses in cultural resources management has increased, and the number of papers on historical archaeological topics which are read at conferences or published in professional journals has soared.

Working in modern American cities rather than distant prehistoric sites has caused important shifts in both the subjects and methods employed by archaeologists. More than anything else, however, it has placed archaeologists at the fulcrum of decision-making concerning the study and

preservation of significant archaeological resources. We have discussed at some length (Chapter 4 and above) the case of the **Lydia**, which was encountered during construction on C-2, but the issues are the same for any publicly funded project. The desire--indeed the legislated mandate--to preserve the American cultural heritage sometimes conflicts with the need to undertake large-scale public works projects in an efficient, economical manner.

As we have noted above, while the intent of protecting a worthy historical property may be agreed upon by all the parties, questions of time, expense, method, and responsibility are inevitably involved. Both the project sponsor and the contractor work against contractual deadlines and pay penalties for exceeding them. Though contracts allow flexibility for unforeseen circumstances, financial costs always accompany exceptions or contract amendments. In a period of high economic inflation and public sensitivity to cost-overruns on government projects, there is a clear responsibility to avoid lengthy unnecessary delays in construction. This requires prompt action in formulating evaluation procedures for any unforeseen resource encountered and a clear timetable for preservation measures ultimately decided upon.

Thus, while scholastic prudence might call for additional study of alternative preservation measures or for measures requiring an indeterminate delay in scheduling, such recommendations may not realistically be feasible, nor may they necessarily be in the long-range interest of fostering support for historic preservation.

In public-sponsored, tax-supported work, it need always be kept in mind, as Uitley has written, that

Not long ago we could complain indignantly about the short-sightedness of engineers, technicians, and builders who flooded, plowed, and bulldozed archaeological sites in the name of progress. That time has passed. New laws have been enacted, and newer ones are being conceived, erecting safeguards for archaeological sites and other cultural and environmental values while permitting the builders to go on with their necessary tasks. We have been given legal tools with which to defend our archaeological resources. If we do not use them we share in the responsibility for the continuing loss of these resources.

The means of defense must be used with prudence and wisdom. We live in a time when few dare openly to oppose measures for environmental protection. But let us also recognize that our nation faces a growing shortage of oil, natural gas, and electrical power. Americans demand food, shelter, transportation, and power. However much they need the information that lies waiting in a million archaeological sites, they do not demand it. Our defense of these sites must therefore be reasoned and orderly, and it must be conducted in a manner sympathetic to the legitimate and proper interests of those who are now destroying the sites (1973:63).

The most important step in obviating, or at least minimizing, unexpected encounters with buried historical cultural resources is the preparation, well in advance of construction, of the cultural resources survey which pinpoints potentially significant remains and designates locations and means for testing to determine their presence or absence. The phrase "well in advance" should include enough time to allow circulation of the document among local historians and resource consultants for their insights.

Within a given metropolitan area, experience and research in resource conservation are cumulative, making refinement of techniques and greater precision in the advance location of historical resources progressively easier. In the Wastewater Program, for example, research on San Francisco's nineteenth-century whaling industry carried out in the search for the identity of the *Lydia* revealed that the decline of the fishery at the end of the century caused many whalers to be laid up on the flats of Oakland Creek. The ultimate fate of some of these vessels is unknown. It may be, too, that one or more hulks lie buried in landfill areas that would be impacted by segments of the Bayside portion of the Wastewater Program's sewer construction. The researchers preparing the historical cultural resources survey for this next phase of construction, now in draft form, are alert to this possibility, and once a final selection of sewer routes has been made, highly focused research and testing will be recommended to avoid a repetition of the unanticipated *Lydia* discovery. With the increased sophistication in location and assessment of resources gained through the Wastewater and other archaeological programs (e.g., Wirth Associates cultural resources surveys for Pacific Gas and Electric Company, the probability of cases involving a collision between resource preservation and costly construction delays should be greatly reduced.

Apart from issues of resource assessment and preservation during construction projects, archaeology in the city is complicated on a more mechanical level by a number of factors absent or considerably diminished in a rural setting. These include the required use of safety equipment around heavy machinery, the observation of city regulations, and the obtaining of permits required for many sorts of testing.

Test borings such as those conducted along the North Shore and Channel Outfalls alignments, for example, are by no means simply a motorized analog of the hand augering that would be conducted at a prehistoric site in the open expanses of Nevada's Great Basin. In testing to locate a particular feature or to sample the fill, the placement of borings may be affected by a number of factors, the least of which may be the suspected location of the target feature as deduced from consultation with maps. For example, buried pipes and utilities often prevent boring at a particular spot. On the N-2 alignment, several of the test borings had to be moved as much as 30 feet from their originally proposed locations to find a spot free of pipes and wires. Overhead obstructions such as power lines, streetlight poles, or awnings may also interfere.

In some locales, alternatives to test borings may be feasible. For example, in Grossman's explorations of buried portions of a nineteenth-century harbor in New Jersey, he successfully utilized ground-penetrating radar to locate and define subsurface features (1980). Due to the combination of several factors, however, remote sensing techniques proved unsuited for use in landfill along the San Francisco waterfront (see Chapter 2 and Appendix E). During the preconstruction phase of the Bayside segments of the Wastewater Management Program, an experiment was tried in which archaeological observers were present when geological test borings were conducted along the various alternative project routes. The experimental study was designed to test whether useful archaeological data could be gathered during procedures conducted to examine soils. The "piggyback" strategy of linking archaeological to geological data-gathering methodologies, however, proved unsatisfactory for several reasons, including scheduling difficulties and the limited size and visibility of the soil samples taken for geological purposes. A detailed summary of this unusual method of gathering archaeological data, including a discussion of the inherent methodological difficulties, is forthcoming (Pastron n.d.).

Archaeological investigations may also be affected by the novel nature of the research situations encountered within a city. Regulations of the California Occupational Safety and Health Administration, for instance, require that people may not work within a trench more than 60 inches deep unless that trench has been made safe either by shoring or by "stepping it back". Either of these procedures creates problems for the archaeological investigator; both are costly and time consuming. "Stepping back" a trench also requires a significant expansion of the available work area and causes disturbance to the upper levels of the site. These safety regulations, however, cannot be ignored or circumvented during the course of archaeological research within modern cities.

Assigning provenience to artifacts recovered during monitoring of an open-cut sewer trench poses a new problem in terms of traditional cataloging and recording of archaeological data. Normally, all artifacts are attributed to a site. By custom--and now by policy of the State of California Office of Historic Preservation (see Memo dated May 31, 1980, issued by the State Historic Preservation Officer on policy concerning archaeological site designation)--all sites are recorded and referred to by a standard trinomial designation (e.g., 4-SFr-7), which indicates state, county, and site number within the county.

In the Wastewater Program, however, cultural deposits extend some eight miles without interruption from Black Point near the Golden Gate south to Hunter's Point. While it is obviously impractical to designate the entire landfill area of the waterfront as a single site, it is equally impractical, at the other extreme, to assign a new site number to each location where an artifact is recovered. While it might be possible to assign boundaries to the fill areas behind each separate segment of the seawall, defining the inland boundary of the "site" is difficult because filling between the original shoreline and the present city front took place in multiple stages (see Chapters 1, 3, and 5). Establishing large-size sites would also pose the need to create smaller, more meaningful sites within them, for example, for the remains of buildings or for buried hulks located on city blocks built on the fill. These issues of artifact and feature provenience have yet to be resolved for fill areas.

Theoretical discussion of what constitutes "Historical Sites Archaeology" or indeed a "historical site" fails to shed light on the problems of defining the limits of a site in an urban context. For example, Schuyler writes that

Historic Sites Archaeology has temporal, geographical, and cultural boundaries because a complex of fundamental underlying patterns and processes creates the historical entity that Historic Sites Archaeologists are studying. These are European in origin and include such factors as the rise of mercantile capitalism. . . . Indigenous sites become historic sites, and thus the subject of our discipline, only when their basic cultural and ecological patterns have been altered by contact and when this is displayed in the archaeological data (1970:85).

As yet many discussions remain on the same interesting but extremely general plane (Fontana 1965, Harrington 1952).

Many of the conceptual and definitional problems raised by conducting archaeology in the city, and particularly by practicing it in landfill, will only be answered in the future. If the San Francisco Wastewater archaeology program has not yet produced definitive answers to some of the large theoretical questions raised during the project, this in part reflects the newness of the queries and in part the fact that the comparative data base required for a systematic pursuit of the answers has yet to be accumulated from other projects in city sites. It is certain, however, that future large-scale urban programs will encounter similar problems of theory and practice and that this report's contribution to the progress of historical archaeology's concept and method, as well as to recorded knowledge of the history of San Francisco, is a measure of the success of the San Francisco Wastewater Management archaeological program.

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PROTECTED BY U.S. MARINE PATENT

Scale: 1" = 10'

1. Main gun turret
2. Secondary gun turret
3. Mainmast
4. Funnel
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Back cover: On the basis of historical research and archaeological testing, maritime historian Raymond Aker drafted this detailed reconstruction drawing of the whaler *Lydia*. (c Raymond Aker)

NOV - 4 1982

